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## ABSTRACT

The data presented in this report show trends in doctorate production by science and engineering (S&E) field and recipient characteristics, institutions awarding doctorates, and postgraduation plans of recipients. The data comes from the Survey of Earned Doctorates (SED), which is conducted annually. Doctoral degrees such as the Ph.D. or D.Sc. are included in these surveys, but first-professional degrees such as the J.D. or M.D. are not. Data from the SED are collected directly from the individual doctorate recipients. Approximately 94% of the annual cohort of doctorate recipients responded to the questionnaire, which is distributed to them through the cooperation of the Graduate Deans. (PR)

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# **Selected Data on Science and Engineering Doctorate Awards: 1991**

**Science and Engineering Education and  
Human Resources Program  
Division of Science Resources Studies  
National Science Foundation**

**92-309**

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**Selected Data on  
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**April 1992**

**Project Officer: Susan T. Hill**

**Science and Engineering Education and  
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## General Notes

The data presented in this report are being released in advance of the publication containing more comprehensive data, all of which were derived from the Survey of Earned Doctorates (SED). They show trends in doctorate production by science and engineering (S&E) field and recipient characteristics, institutions awarding doctorates, and postgraduation plans of recipients.

The SED is conducted annually for the National Science Foundation (NSF) and other Federal agencies by the National Research Council. Information from this survey becomes part of the Doctorate Records File, which is a census of doctorates awarded since 1920 by regionally-accredited universities and colleges. Doctoral degrees such as the Ph.D. or D. Sc. are included in these surveys, but first-professional degrees such as the J.D. or M.D. are not.

Data for the SED are collected directly from the individual doctorate recipients. Approximately 94 percent of the annual cohort of doctorate recipients responded to the questionnaire, which is distributed to them through the cooperation of the Graduate Deans. Partial data from public sources are added to the file for nonrespondents; therefore complete counts are presented for conferred doctorates by field of study and sex of recipient. The data for a given year include all doctorates awarded in the 12-month period ending on June 30 of that year.

These tables present detailed data on (S&E) doctorates recipients, with some totals provided for non-S&E fields. Detailed data on non-S&E fields are published by the National Research Council and by other Federal sponsors of the Survey of Earned Doctorates. The groupings of field specialties into broad fields may differ among the sponsoring agencies according to their missions.

Additional detailed tabulations will be available soon. For further information on the availability of data for S&E doctorate recipients, please contact the Science Resource Analyst concerned:

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Table 1. Science and engineering (S&E) doctorates awarded, by subfield: 1981-91

Subfield	Year of doctorate										
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
TOTAL, S&E .....	17,996	18,017	18,393	18,514	18,712	19,251	19,706	20,739	21,530	22,677	23,748
TOTAL, SCIENCES .....	15,468	15,371	15,612	15,601	15,546	15,875	15,994	16,551	16,986	17,784	18,536
PHYSICAL SCIENCES .....	2,627	2,694	2,802	2,845	2,916	3,090	3,212	3,317	3,244	3,492	3,602
Physics/astronomy .....	1,015	1,014	1,043	1,080	1,080	1,187	1,237	1,302	1,274	1,392	1,408
Acoustics .....	13	11	14	21	10	15	17	16	15	21	12
Astronomy .....	50	52	50	42	43	52	46	66	49	52	50
Astrophysics .....	59	50	65	56	57	57	54	64	64	76	75
Atomic/molecular .....	66	96	71	77	58	70	79	77	74	87	76
Electron(1) .....	-	-	1	2	4	2	6	2	4	2	1
Elementary particle .....	119	119	136	138	154	147	159	174	135	163	182
Fluids .....	14	13	15	11	16	6	21	17	14	17	14
Nuclear(2) .....	63	53	90	72	86	89	74	88	81	73	66
Optics .....	54	42	50	53	51	58	50	65	78	76	84
Plasma .....	65	69	72	73	55	61	72	65	61	42	58
Polymer(3) .....	-	-	10	8	11	11	15	20	7	11	17
Solid state .....	253	235	222	258	248	280	287	252	296	306	371
Thermal(4) .....	7	-	-	-	-	-	-	-	-	-	-
Physics, general .....	164	167	150	170	176	222	238	271	269	323	247
Physics, other .....	88	107	97	99	111	117	119	125	127	143	155
Chemistry .....	1,612	1,680	1,759	1,765	1,836	1,903	1,975	2,015	1,970	2,100	2,194
Analytical .....	229	190	264	228	285	257	314	301	289	293	303
Inorganic .....	188	226	215	233	251	260	240	250	256	242	259
Nuclear .....	12	20	13	18	7	18	13	7	6	13	14
Organic .....	494	519	503	525	494	511	511	531	511	452	537
Pharmaceutical .....	52	55	78	56	60	58	65	73	64	48	82
Physical .....	275	324	311	329	304	293	302	318	310	325	363
Polymer .....	62	50	62	63	84	72	96	81	78	81	111
Theoretical .....	33	32	48	37	48	41	46	50	46	55	45
Chemistry, general .....	193	175	177	183	213	289	297	310	312	524	407
Chemistry, other .....	74	89	88	93	90	104	91	94	98	67	73

See footnotes at end of table.

Table 1. Science and engineering (S&E) doctorates awarded, by subfield: 1981-91--continued

Subfield	Year of doctorate										
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<b>EARTH, ATMOS., &amp; OCEAN SCI .....</b>	<b>583</b>	<b>657</b>	<b>637</b>	<b>614</b>	<b>617</b>	<b>589</b>	<b>628</b>	<b>728</b>	<b>740</b>	<b>769</b>	<b>837</b>
Applied geology(5) .....	21	25	8	7	8	4	5	7	6	6	1
Atmos/meteorol sci, gen(3) .....	-	-	16	5	10	7	16	14	14	23	26
Atmos/meteorol sci, other .....	33	26	27	12	10	7	13	10	15	2	10
Atmospheric dynamics .....	27	22	16	25	21	16	17	25	16	20	21
Atmospheric phys/chem .....	15	17	21	11	16	21	24	19	15	18	20
Environmental sciences(6) .....	54	53	50	45	42	35	29	58	68	50	35
Geochemistry .....	48	51	48	43	48	37	31	46	39	56	63
Geology(7) .....	-	-	105	124	111	118	114	144	165	166	191
Structural geology(7) .....	27	25	-	-	-	-	-	-	-	-	-
Geomorph/glacial geology .....	13	21	10	9	13	11	18	9	10	14	18
Geophysics/seismology(8) .....	72	81	75	68	92	89	75	83	87	91	113
Hydrology/water res .....	21	24	20	18	17	16	18	24	24	13	16
Marine sciences(9) .....	-	-	22	21	24	22	38	28	26	39	27
Marine sciences, other(9) .....	30	41	-	-	-	-	-	-	-	-	-
Meteorology(10) .....	-	-	17	28	23	27	17	35	27	20	31
Minerology, petrology .....	30	41	24	28	28	17	24	19	36	26	36
Oceanography .....	70	92	87	78	68	78	73	81	87	89	85
Paleontology .....	19	24	17	35	23	16	21	24	17	21	24
Stratigraphy, sediment .....	42	47	25	16	23	14	22	30	24	25	29
Geological sciences, gen(11) .....	-	-	15	10	11	12	18	8	19	31	34
Geological sciences, other(11) .....	-	-	21	25	11	12	29	31	28	28	36
Earth sciences, general(11) .....	45	38	-	-	-	-	-	-	-	-	-
Earth sciences, other(11) .....	16	29	-	-	-	-	-	-	-	-	-
Physical sciences, other(3) .....	-	-	13	6	18	30	26	33	17	31	21
<b>MATHEMATICS .....</b>	<b>728</b>	<b>720</b>	<b>701</b>	<b>698</b>	<b>688</b>	<b>729</b>	<b>740</b>	<b>749</b>	<b>859</b>	<b>892</b>	<b>1,040</b>
Algebra .....	56	60	55	65	55	46	57	54	50	39	72
Analysis/funct analysis .....	105	98	76	71	83	81	86	76	103	90	132
Applied mathematics .....	118	108	125	108	116	135	131	142	158	185	192
Computing theory .....	16	11	12	13	15	10	14	12	12	12	19
Geometry .....	29	32	44	27	35	38	30	44	47	42	66
Logic .....	18	17	21	25	30	23	18	20	12	19	23
Number theory .....	163	165	151	181	150	141	143	152	167	157	206
Operations research .....	24	28	19	27	18	20	15	26	23	26	30
Math probability/stat .....	36	36	20	27	29	29	22	22	22	29	16
Topology .....	55	45	44	42	35	34	41	27	37	50	57
Mathematics, general .....	77	84	86	78	85	125	137	134	177	191	182
Mathematics, other .....	31	36	48	34	44	47	46	33	51	52	45
<b>COMPUTER/INFORMATION SCI .....</b>	<b>232</b>	<b>220</b>	<b>286</b>	<b>295</b>	<b>310</b>	<b>399</b>	<b>450</b>	<b>515</b>	<b>612</b>	<b>705</b>	<b>797</b>
Computer sciences .....	232	220	264	256	249	355	384	442	519	612	719
Information sci/systems(3) .....	-	-	22	39	61	44	66	73	93	93	78

See footnotes at end of table.



Table 1. Science and engineering (S&E) doctorates awarded, by subfield: 1981-91--continued

Subfield	Year of doctorate										
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<b>AGRICULTURAL &amp; BIOLOGICAL SCI</b>	<b>4,786</b>	<b>4,844</b>	<b>4,756</b>	<b>4,877</b>	<b>4,904</b>	<b>4,805</b>	<b>4,815</b>	<b>5,127</b>	<b>5,203</b>	<b>5,507</b>	<b>5,714</b>
Agricultural sciences .....	982	951	1,015	997	1,111	998	976	1,015	1,088	1,176	1,072
Agrie business & mgmt (12) .....	177	159	149	137	158	159	143	141	140	143	117
Agonomy .....	19	22	25	28	28	25	23	27	23	22	18
Animal breeding/genetics(13) .....	-	-	56	71	78	65	82	54	67	54	57
Animal nutrition(14) .....	149	133	-	-	-	-	-	-	-	-	-
Animal sci/nutrition(14) .....	-	-	-	-	-	-	-	-	-	-	-
Dairy science(14) .....	-	-	-	-	-	-	-	12	16	20	19
Poultry science(14) .....	-	-	-	-	-	-	-	10	11	17	13
Animal sciences, other(14) .....	66	65	92	90	95	91	76	86	95	90	91
Fish/wildlife(15) .....	-	-	36	45	36	32	32	42	34	42	39
Fisheries science(15) .....	-	-	31	31	38	20	23	3	-	-	-
Wildlife management(15) .....	-	-	-	-	-	-	-	36	52	58	59
Wildlife/range mgmt(15) .....	104	110	141	113	136	121	131	16	1	-	-
Food sciences(16) .....	-	-	-	-	-	-	-	6	11	10	12
Food engineering(16) .....	-	-	-	-	-	-	-	119	147	141	137
Food sciences, other(16) .....	95	78	90	94	105	88	100	15	-	-	-
Forestry science(17) .....	-	-	-	-	-	-	-	21	22	27	17
Forest biology(17) .....	-	-	-	-	-	-	-	3	1	2	2
Forest engineering(17) .....	-	-	-	-	-	-	-	18	21	14	22
Forest management(17) .....	-	-	-	-	-	-	-	7	16	16	16
Wood science(17) .....	-	-	-	-	-	-	-	7	12	16	19
Renewable natural resources(17) .....	-	-	-	-	-	-	-	35	57	62	45
Forestry & related sci, other(17) .....	85	88	72	66	76	60	71	61	75	101	78
Horticulture science .....	-	-	71	78	88	78	70	83	64	87	69
Plant breeding/genetics(18) .....	-	-	92	57	89	85	76	46	63	64	90
Plant pathology(18) .....	99	114	-	-	-	-	-	-	-	-	-
Phytopathology(18) .....	-	-	-	-	-	-	-	1	6	4	2
Plant protection-pest mgmt(19) .....	-	-	16	20	21	22	20	23	15	23	17
Plant sciences, other(18) .....	90	83	85	99	97	103	74	18	-	-	-
Soil sciences(20) .....	-	-	-	-	-	-	-	33	28	27	24
Soil chem/microbio(20) .....	-	-	-	-	-	-	-	62	75	91	78
Soil sciences, other(20) .....	5	5	7	1	5	4	5	9	7	5	3
Agriculture, general .....	93	94	52	67	61	45	50	21	27	38	27
Agriculture, other .....	-	-	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

Table 1. Science and engineering (S&E) doctorates awarded, by subfield: 1981-91--continued

Subfield	Year of doctorate										
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<b>AGRICULTURAL &amp; BIOLOGICAL SCI (con't.)</b>											
Biological sciences .....	3,804	3,893	3,741	3,880	3,793	3,807	3,839	4,112	4,115	4,331	4,642
Anatomy .....	156	163	107	103	135	86	92	88	80	70	77
Biochemistry .....	645	649	647	606	581	576	573	613	669	678	762
Biometrics/biostatistics .....	48	59	45	49	40	30	37	47	46	47	59
Biophysics .....	99	91	88	90	69	72	86	97	87	103	99
Botany, other(21) .....	-	-	116	126	120	121	106	112	117	104	105
Botany(21) .....	147	146	-	-	-	-	-	-	-	-	-
Cell biology(22) .....	-	-	118	123	100	130	127	118	133	145	150
Cytology(22) .....	47	41	-	-	-	-	-	-	-	-	-
Ecology .....	20	10	13	15	15	9	6	7	10	22	37
Develop bio/embryology(23) .....	198	173	183	202	200	183	158	155	161	166	190
Endocrinology(3) .....	-	-	28	30	17	17	19	21	21	24	33
Entomology .....	143	170	141	156	173	170	123	133	139	147	138
Human/animal genetics(24) .....	-	-	95	82	105	91	113	118	112	153	160
Plant genetics(24) .....	-	-	19	20	31	20	26	26	18	31	23
Genetics(24) .....	157	176	-	-	-	-	-	-	-	-	-
Human/animal pathology(25) .....	-	-	97	88	110	91	127	112	105	101	120
Plant pathology(25) .....	-	-	29	30	38	28	33	30	22	37	50
Pathology(25) .....	106	97	-	-	-	-	-	-	-	-	-
Human/animal pharmacology .....	280	280	218	237	235	245	234	252	241	243	262
Human/animal physiology(26) .....	-	-	246	237	245	240	248	225	272	278	272
Animal physiology(26) .....	327	309	-	-	-	-	-	-	-	-	-
Plant physiology .....	68	56	67	70	58	52	62	74	47	51	65
Immunology .....	148	151	154	133	124	146	136	179	152	153	177
Microbiology(27) .....	-	-	309	346	289	326	301	333	340	335	373
Bacteriology(27) .....	-	-	10	12	17	12	13	7	11	15	11
Microbiology/bacteriology(27) .....	355	324	-	-	-	-	-	-	-	-	-
Molecular biology .....	187	223	225	275	277	298	303	364	413	413	481
Neurosciences .....	-	117	134	145	156	120	153	163	181	192	239
Nutritional sciences(28) .....	99	120	111	109	113	122	141	127	128	118	106
Parasitology .....	18	14	9	30	21	25	16	20	20	13	20
Toxicology(3) .....	-	-	60	97	99	104	115	108	111	91	86
Zoology, other(29) .....	-	-	192	158	147	155	139	167	132	122	126
Zoology(29) .....	-	-	-	-	-	-	-	-	-	-	-
Biological sci, general .....	198	199	174	190	190	213	229	256	231	337	278
Biological sci, other .....	204	196	106	121	88	125	123	160	116	142	143
Biological sci, other .....	154	129	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

Table 1. Science and engineering (S&E) doctorates awarded, by subfield: 1981-91--continued

Subfield	Year of doctorate										
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<b>SOCIAL SCIENCES</b>	3,154	3,077	3,083	3,015	2,994	3,139	2,980	3,051	3,125	3,150	3,306
Agricultural economics	168	179	157	158	147	158	136	155	164	144	165
Anthropology	369	333	373	335	353	381	352	325	325	324	340
Area studies	20	19	20	23	19	28	17	16	17	22	23
Criminology(30)	35	36	49	41	38	24	29	43	32	42	35
Demography(3)	-	-	26	19	25	15	26	19	22	20	27
Econometrics	17	24	21	27	27	25	25	27	26	26	24
Economics	808	737	792	767	785	835	798	826	872	837	853
Geography	109	106	121	114	120	120	111	129	105	131	108
History of science(31)	26	29	13	24	23	24	25	22	20	26	27
International relations	87	77	76	95	78	76	82	77	94	97	88
Linguistics	176	191	164	160	176	189	199	166	188	167	227
Political science/government(32)	-	-	397	419	406	414	404	392	430	462	434
Political science(32)	445	459	-	-	-	-	-	-	-	-	-
Public policy studies(3)	-	-	69	54	70	81	83	73	79	87	111
Sociology	605	568	525	515	461	491	423	449	436	428	466
Statistics	40	43	47	39	60	65	49	47	69	69	31
Urban studies(33)	94	93	74	81	75	50	72	86	62	67	89
Social sciences, general	22	34	17	17	17	36	30	28	26	23	36
Social sciences, other	133	149	142	127	114	127	119	171	158	178	222
<b>PSYCHOLOGY</b>	3,358	3,159	3,347	3,257	3,117	3,124	3,169	3,064	3,203	3,269	3,240
Clinical	1,259	1,168	1,241	1,195	1,181	1,172	1,214	1,094	1,260	1,330	1,302
Cognitive(3)	-	-	65	77	76	70	80	83	79	76	94
Comparative	11	12	11	13	11	14	9	7	8	8	7
Counseling(34)	351	348	432	464	431	449	486	482	501	466	495
Developmental(35)	201	192	219	207	175	184	200	176	148	159	156
Educational	180	140	154	210	127	106	89	103	105	98	110
Experimental	283	240	209	169	165	147	146	135	146	143	142
Industrial/organizational(36)	87	83	90	106	102	110	107	118	104	125	142
Physiological	102	90	94	73	79	73	69	85	62	46	45
Quantitative(3)	-	-	14	17	16	23	13	12	11	15	7
Personality	49	36	32	25	21	16	25	18	28	20	13
Psychometrics	27	8	10	6	10	11	9	11	6	8	9
School	133	166	121	89	92	116	93	115	107	82	82
Social	180	179	191	157	167	141	133	115	128	145	147
Psychology, general	279	242	292	267	265	308	339	359	358	368	321
Psychology, other	216	255	172	182	199	184	157	126	152	180	168

See footnotes at end of table.

Table 1. Science and engineering (S&E) doctorates awarded, by subfield: 1981-91--continued

Subfield	Year of doctorate										
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<b>TOTAL, ENGINEERING</b> .....	2,528	2,646	2,781	2,913	3,166	3,376	3,712	4,188	4,544	4,893	5,212
Aeronautical/astronautical(37) .....	97	86	106	119	124	118	142	150	178	192	207
Agricultural .....	64	48	58	74	60	52	74	70	102	101	84
Bioengineering/biomedical(38) .....	64	59	74	70	69	67	75	114	129	129	149
Ceramic .....	24	20	24	25	19	25	42	30	35	43	58
Chemical .....	296	306	349	361	440	476	527	624	625	561	620
Civil .....	287	308	354	351	358	387	441	489	498	505	509
Communications(3) .....	-	-	25	11	30	23	26	24	25	35	21
Computer .....	71	72	83	56	55	77	62	100	117	131	178
Electrical/electronics(39) .....	-	-	436	587	629	706	691	886	995	1,110	1,206
Electrical(39) .....	410	470	66	6	2	-	-	-	-	-	-
Electronics(39) .....	68	74	15	-	-	-	-	-	-	-	-
Engineering mechanics .....	78	103	68	91	89	94	113	105	110	111	113
Engineering physics .....	22	12	10	8	12	13	13	9	16	16	23
Engineering science(3) .....	-	-	30	28	31	30	26	32	27	37	42
Environmental health engin(40) ....	71	60	43	57	33	42	36	43	41	48	64
Industrial .....	66	79	86	84	92	101	120	127	162	151	163
Materials science .....	113	147	157	168	188	187	238	252	257	307	362
Mechanical .....	282	334	311	336	424	442	544	610	650	772	761
Metallurgical(41) .....	97	88	87	78	96	93	112	92	88	90	70
Mining/mineral(42) .....	8	7	22	16	16	22	27	17	33	39	38
Naval arch/marine engin(1) .....	-	-	4	5	8	9	7	9	9	8	5
Nuclear .....	130	121	103	120	96	98	84	104	86	114	107
Ocean(3) .....	-	-	12	11	25	14	24	21	20	17	21
Operations research .....	80	58	44	50	54	54	51	44	68	46	76
Petroleum(43) .....	21	27	22	17	24	18	23	33	29	49	28
Polymer(3) .....	-	-	21	31	40	37	34	28	58	48	42
Systems(44) .....	68	49	57	52	57	33	47	44	30	51	48
Engineering, general .....	36	29	30	29	26	55	54	49	61	75	78
Engineering, other .....	75	89	84	72	69	103	79	82	109	107	139
<b>TOTAL, NON-S&amp;E(45)</b> .....	13,361	13,094	12,889	12,823	12,585	12,644	12,657	12,750	12,788	13,380	13,703
<b>TOTAL, ALL FIELDS</b> .....	31,357	31,111	31,282	31,337	31,297	31,895	32,363	33,489	34,318	36,057	37,451

See footnotes at end of table.

## FOOTNOTES

[A hyphen (-) in a data column signifies that the subfield was not identified separately in the questionnaire for that year (e.g., the subfield "polymer physics" was introduced in 1983), or that this subfield was included in the questionnaire for that year but no doctorates were reported.]

- (1) This subfield was introduced in 1983 and deleted in 1991.
- (2) This subfield was changed from "nuclear structure" to "nuclear" in 1983.
- (3) This subfield was introduced in 1983.
- (4) This subfield was deleted in 1982.
- (5) This subfield was changed from "applied geology, geological engineering, and economic geology" to "applied geology" in 1983. "Applied geology" was deleted in 1991.
- (6) "Environmental sciences, general" and "environmental sciences, other" were replaced by "environmental sciences" in 1983.
- (7) "Structural geology" was discontinued in 1983, and "geology" was introduced.
- (8) This subfield was changed from "geophysics, solid earth" to "geophysics and seismology" in 1983.
- (9) "Marine sciences, other" was discontinued in 1983, and "marine sciences" was introduced.
- (10) This subfield had been deleted in 1976, but was restored in 1983.
- (11) "Earth science, general" and "earth science, other" were discontinued in 1983, and "geological sciences, general" and "geological sciences, other" were introduced.
- (12) This subfield was introduced in 1988.
- (13) This subfield was changed from "animal husbandry" to "animal breeding/genetics" in 1983.
- (14) "Animal science and animal nutrition" was separated into "animal nutrition" and "animal sciences, other" in 1983. In 1988 "dairy science" and "poultry science" were introduced.
- (15) "Fish and wildlife" was separated into two subfields in 1983. In 1988 "wildlife management" was discontinued, and "wildlife/range management" was introduced.
- (16) This subfield was changed from "food science and technology" to "food sciences" in 1983. In 1988 "food sciences" was separated into "food distribution," "food engineering," and "food sciences, other."
- (17) In 1988 "forestry science" was separated into "forestry biology," "forest engineering," "forest management," "wood science," "renewable natural resources," and "forestry and related sciences, other."
- (18) "Phytopathology" was discontinued in 1983, and subfields "plant breeding and genetics," "plant pathology," and "plant sciences, other" were introduced.
- (19) This subfield was introduced in 1988 and deleted in 1991.
- (20) This subfield was changed from "soils and soil science" to "soil sciences" in 1983. In 1988 "soil sciences" was separated into "soil chemistry/microbiology" and "soil sciences, other."
- (21) "Botany" was discontinued in 1983, and "botany, other" was introduced.

## FOOTNOTES (continued)

- (22) "Cytology" was discontinued in 1983, and "cell biology" was introduced.
- (23) This subfield was changed from "embryology" to "developmental biology/embryology" in 1990.
- (24) "Genetics" was separated into "plant genetics" and "human and animal genetics" in 1983.
- (25) "Pathology" was separated into "plant pathology" and "human and animal pathology" in 1983.
- (26) "Animal physiology" was discontinued in 1983, and "human and animal physiology" was introduced.
- (27) "Microbiology/bacteriology" was separated into two subfields in 1983.
- (28) This subfield was changed from "nutrition and dietetics" to "nutritional sciences" in 1983.
- (29) "Zoology" was discontinued in 1983, and "zoology, other" was introduced.
- (30) This subfield was introduced in 1980 as "criminology and criminal justice." In 1983 it was changed to "criminology."
- (31) The subfield "history and philosophy of science" was introduced in 1971. The name was changed to "history of science" in 1983.
- (32) "Political science" was discontinued in 1983, and "political science and government" was introduced.
- (33) This subfield was changed from "urban and regional planning" to "urban studies" in 1983.
- (34) This subfield was changed from "counseling and guidance" to "counseling" in 1983.
- (35) This subfield was changed from "developmental and gerontological" to "developmental" in 1983.
- (36) This subfield was changed from "industrial and personnel" to "industrial and organizational" in 1983.
- (37) "Aerospace" was added to "aeronautical/astronautical engineering" in 1983.
- (38) "Bioengineering" was added to "biomedical engineering" in 1983.
- (39) "Electrical" and "electronics" were merged in 1983.
- (40) This subfield was changed from "sanitary and environmental" to "environmental health" in 1983.
- (41) This subfield was changed from "metallurgy and physical metallurgical" to "metallurgical" in 1983.
- (42) This subfield was changed from "mining" to "mining and mineral" in 1983.
- (43) This subfield was changed from "fuel technology and petroleum engineering" to "petroleum" in 1983.
- (44) This subfield was changed from "systems design and systems science" to "systems" in 1983.
- (45) Non-S&E doctorates awarded include those whose field of specialization is unknown.

SOURCE: National Science Foundation/SRS, Survey of Earned Doctorates

Table 2. Science and engineering (S&E) doctorates awarded to females, by subfield: 1981-91

Subfield	Year of doctorate												Percent female	
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1981	1991	
TOTAL, S&E .....	4,116	4,270	4,624	4,704	4,812	5,084	5,234	5,577	6,008	6,295	6,757	22.9	28.5	
TOTAL, SCIENCES .....	4,017	4,146	4,500	4,553	4,614	4,859	4,992	5,291	5,633	5,880	6,305	26.0	34.0	
PHYSICAL SCIENCES .....	309	357	371	399	464	505	526	557	617	653	659	11.8	18.3	
Physics/astronomy .....	73	84	74	79	102	109	120	130	118	150	152	7.2	10.8	
Acoustics .....	2	-	1	-	3	2	-	2	-	2	2	15.4	16.7	
Astronomy .....	7	11	8	4	5	4	7	13	8	13	7	14.0	14.0	
Astrophysics .....	4	5	7	8	6	5	6	3	9	7	6	6.8	8.0	
Atomic/molecular .....	8	7	6	3	6	6	4	8	8	7	4	12.1	5.3	
Electron(1) .....	-	-	-	-	1	-	-	-	-	-	-	-	-	
Elementary particle .....	8	4	3	8	8	11	15	16	10	14	20	6.7	11.0	
Fluids .....	3	2	2	1	1	2	-	-	1	1	-	21.4	-	
Nuclear(2) .....	3	6	6	8	7	8	4	6	8	5	7	4.8	10.6	
Optics .....	1	2	2	3	9	9	5	6	7	5	13	1.9	15.5	
Plasma .....	2	3	2	3	3	3	5	4	4	2	2	3.1	3.4	
Polymer(3) .....	-	-	-	-	3	3	3	-	1	3	3	-	17.6	
Solid state .....	20	19	21	18	19	29	24	35	23	35	41	7.9	11.1	
Physics, general .....	10	13	9	12	10	18	31	25	19	33	29	6.1	11.7	
Physics, other .....	5	12	7	11	21	9	16	12	20	23	18	5.7	11.6	
Chemistry .....	236	273	297	320	362	396	406	427	499	503	507	14.6	23.1	
Analytical .....	30	27	46	32	62	46	72	60	63	68	82	13.1	27.1	
Inorganic .....	35	42	38	50	47	62	59	66	74	60	73	18.6	28.2	
Nuclear .....	-	3	3	3	1	2	-	-	-	2	4	-	28.6	
Organic .....	61	78	70	73	79	96	88	89	105	104	108	12.3	20.1	
Pharmaceutical .....	5	11	16	15	15	17	16	19	21	20	26	9.6	31.7	
Physical .....	51	49	61	63	70	71	59	71	87	76	86	18.5	23.7	
Polymer .....	5	5	12	12	14	12	13	12	15	13	24	8.1	21.6	
Theoretical .....	6	6	7	5	7	6	17	9	9	14	7	18.2	15.6	
Chemistry, general .....	25	29	23	40	45	52	53	73	91	128	70	13.0	17.2	
Chemistry, other .....	18	23	21	27	22	32	29	28	34	18	27	24.3	37.0	

See footnotes at end of table.

Table 2. Science and engineering (S&E) doctorates awarded to females, by subfield: 1981-91--continued

Subfield	Year of doctorate											Percent female	
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1981	1991
EARTH, ATMOS, & OCEAN SCI .....	56	103	97	106	111	100	114	145	150	149	185	9.6	22.1
Applied geology(5) .....	-	2	-	2	-	1	1	1	-	3	-	-	-
Atmos/meteorol sci, gen(3) .....	-	-	1	-	-	-	4	1	3	5	2	-	7.7
Atmos/meteorol sci, other .....	1	1	3	3	-	1	3	1	3	1	1	3.0	10.0
Atmospheric dynamics .....	1	3	1	2	1	3	3	2	2	4	3	3.7	14.3
Atmospheric phys/chem .....	1	-	1	-	1	3	4	-	2	1	2	6.7	10.0
Environmental sciences(6) .....	11	11	11	9	6	8	6	16	20	11	13	20.4	37.1
Geochemistry .....	5	8	9	7	11	7	9	7	13	9	19	10.4	30.2
Geology(7) .....	-	-	17	22	21	23	25	36	35	32	34	-	17.8
Structural geology(7) .....	1	6	-	-	-	-	-	-	-	-	-	3.7	-
Geomorph/glacial geology .....	2	6	2	1	1	2	2	3	3	-	2	15.4	11.1
Geophysics/seismology(8) .....	6	6	8	7	13	18	11	8	11	15	17	8.3	15.0
Hydrology/water res .....	1	3	1	2	1	1	5	5	2	2	2	4.8	12.5
Marine sciences(9) .....	-	-	7	6	2	3	3	9	6	7	2	-	7.4
Marine sciences, other(9) .....	2	9	-	-	-	-	-	-	-	-	-	6.7	-
Meteorology(10) .....	-	-	-	2	2	2	-	7	-	3	7	-	22.6
Minerology, petrology .....	5	8	6	6	10	4	8	3	5	4	15	16.7	41.7
Oceanography .....	7	14	18	21	21	8	13	17	20	24	23	10.0	27.1
Paleontology .....	1	7	2	6	5	7	5	3	4	2	7	5.3	29.2
Stratigraphy, sediment .....	7	8	4	2	5	-	2	8	6	5	8	16.7	27.6
Geological sciences, gen(11) .....	-	-	2	3	5	1	3	2	2	5	11	-	32.4
Geological sciences, other(11) .....	-	-	2	4	3	4	5	6	11	8	10	-	27.8
Earth sciences, general(11) .....	3	5	-	-	-	-	-	-	-	-	-	6.7	-
Earth sciences, other(11) .....	2	6	-	-	-	-	-	-	-	-	-	12.5	-
Physical sciences, other(3) .....	-	-	2	-	3	5	2	10	2	8	7	-	33.3
MATHEMATICS .....	112	96	113	115	106	121	125	121	155	158	194	15.4	18.7
Algebra .....	14	12	8	13	6	18	10	10	10	6	16	25.0	22.2
Analysis/funct analysis .....	8	15	8	13	10	11	6	15	20	15	21	7.6	15.9
Applied mathematics .....	24	10	21	16	19	20	29	17	28	34	27	20.3	14.1
Computing theory .....	2	-	2	1	1	-	4	3	1	1	3	12.5	15.8
Geometry .....	1	2	6	6	2	1	3	4	7	8	5	3.4	7.6
Logic .....	1	-	2	1	4	3	2	2	5	3	1	5.6	4.3
Number theory .....	32	29	27	31	32	27	36	31	38	31	56	19.6	27.2
Operations research .....	1	4	4	4	2	1	2	5	5	1	8	4.2	26.7
Math probability/stat .....	4	5	5	1	6	4	1	3	4	2	4	11.1	25.0
Topology .....	11	5	9	10	4	6	3	3	8	11	18	20.0	31.6
Mathematics, general .....	8	7	8	11	12	20	22	20	17	32	26	10.4	14.3
Mathematics, other .....	6	7	13	8	8	10	7	8	12	14	9	19.4	20.0
COMPUTER/INFORMATION SCI .....	26	20	36	37	33	48	65	56	108	110	116	11.2	14.6
Computer sciences .....	26	20	33	24	20	39	51	39	69	85	96	11.2	13.4
Information sci/systems(3) .....	-	-	3	13	13	9	14	17	39	25	20	-	25.6

See footnotes at end of table.



Table 2. Science and engineering (S&amp;E) doctorates awarded to females, by subfield: 1981-91--continued

Subfield	Year of doctorate												Percent female	
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1981	1991	
AGRICULTURAL & BIOLOGICAL SCI	1,221	1,292	1,366	1,348	1,409	1,452	1,531	1,691	1,770	1,863	1,968	25.5	34.4	
Agricultural sciences	134	151	133	133	171	172	171	186	228	247	209	13.6	19.5	
Agrie business & mgmt (12)	-	16	11	12	19	15	17	19	20	21	11	8.5	9.4	
Agonomy	15	3	4	5	8	4	3	2	3	3	2	-	11.1	
Animal breeding/genetics(13)	-	-	6	7	13	13	13	12	15	13	10	-	17.5	
Animal nutrition(14)	-	-	-	-	-	-	-	-	-	-	-	11.4	-	
Animal sci/nutrition(14)	17	17	-	-	-	-	-	1	1	2	4	-	21.1	
Dairy science(14)	-	-	-	-	-	-	-	2	2	3	1	-	7.7	
Poultry science(14)	-	-	9	15	13	16	16	13	25	11	19	-	20.9	
Animal sciences, other(14)	-	-	-	-	-	-	-	-	-	-	-	13.6	-	
Fish/wildlife(15)	9	7	6	5	5	9	-	8	5	6	4	-	10.3	
Fisheries science(15)	-	-	1	3	1	2	1	8	10	6	8	-	13.6	
Wildlife management(15)	-	-	-	-	-	-	-	-	-	-	-	-	-	
Wildlife/range mgmt(15)	-	-	-	32	33	40	48	3	1	2	2	-	16.7	
Food sciences(16)	28	30	38	-	-	-	-	36	53	54	46	-	33.6	
Food engineering(16)	-	-	-	-	-	-	-	-	-	-	-	6.3	-	
Food sciences, other(16)	-	-	4	5	15	17	5	2	8	3	-	17.6	-	
Forestry science(17)	6	4	-	-	-	-	3	3	-	-	-	-	-	
Forest biology(17)	-	-	-	-	-	-	-	-	-	-	1	-	50.0	
Forest engineering(17)	-	-	-	-	-	-	-	2	2	1	4	-	18.2	
Forest management(17)	-	-	-	-	-	-	-	-	-	-	2	-	12.5	
Wood science(17)	-	-	-	-	-	-	-	-	1	3	3	-	15.8	
Renewable natural resources(17)	-	-	-	-	-	-	-	6	8	10	5	-	11.1	
Forestry & related sci, other(17)	-	-	-	-	-	-	-	-	-	-	-	-	-	
Horticulture science	17	19	9	21	11	12	16	16	19	27	19	20.0	24.4	
Plant breeding/genetics(18)	-	-	13	8	14	13	11	12	13	20	10	-	14.5	
Plant pathology(18)	-	-	19	8	24	14	22	12	24	25	26	-	28.9	
Plant protection-pest mgmt(19)	21	27	-	-	-	-	-	-	-	-	-	21.2	-	
Phytopathology(18)	-	-	-	-	-	-	-	3	-	1	-	-	-	
Plant protection-pest mgmt(19)	-	-	1	2	3	5	3	3	4	4	4	-	23.5	
Plant sciences, other(18)	-	-	7	4	7	10	7	1	7	-	-	7.8	-	
Soil sciences(20)	7	15	-	-	-	-	-	7	7	6	6	-	25.0	
Soil chem/microbio(20)	-	-	-	-	-	-	-	11	7	8	11	-	14.1	
Soil sciences, other(20)	-	-	-	-	-	-	-	-	2	-	-	-	-	
Soil sciences, general	1	1	-	-	-	-	-	3	3	-	1	20.0	33.3	
Agriculture, other	13	12	5	6	5	2	9	3	3	2	7	14.0	25.9	

See footnotes at end of table.

Table 2. Science and engineering (S&amp;E) doctorates awarded to females, by subfield: 1981-91--continued

Subfield	Year of doctorate											Percent female	
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1981	1991
<b>AGRICULTURAL &amp; BIOLOGICAL SCI (con't.)</b>													
Biological sciences .....	1,087	1,141	1,233	1,215	1,238	1,280	1,360	1,505	1,542	1,616	1,759	28.6	37.9
Anatomy .....	48	62	37	37	45	27	42	32	27	29	31	30.8	40.3
Biochemistry .....	189	166	195	191	184	194	199	203	268	237	285	29.3	37.4
Biometrics/biostatistics .....	12	18	22	18	12	10	14	15	20	18	29	25.0	49.2
Biophysics .....	10	13	16	21	7	13	22	21	21	23	26	10.1	26.3
Botany, other(21) .....	-	-	39	38	34	42	36	41	52	33	38	-	36.2
Botany(21) .....	42	42	-	-	-	-	-	-	-	-	-	28.6	-
Cell biology(22) .....	-	-	41	48	39	44	55	55	57	69	63	-	42.0
Cytology(22) .....	14	18	-	-	-	-	-	-	-	-	-	29.8	-
Ecology .....	10	3	7	8	5	7	-	3	4	12	20	50.0	54.1
Develop bio/embryology(23) .....	52	42	37	45	52	40	38	47	36	52	60	26.3	31.6
Endocrinology(3) .....	-	-	14	11	4	6	11	10	10	11	16	-	48.5
Entomology .....	13	23	20	29	34	22	25	26	23	26	35	9.1	25.4
Human/animal genetics(24) .....	-	-	43	39	49	41	54	57	57	73	71	-	44.4
Plant genetics(24) .....	-	-	5	4	8	10	7	6	3	7	5	-	21.7
Genetics(24) .....	62	65	-	-	-	-	-	-	-	-	-	39.5	-
Human/animal pathology(25) .....	-	-	24	23	35	33	48	43	41	32	45	-	37.5
Plant pathology(25) .....	-	-	8	5	8	5	10	9	8	12	12	-	24.0
Pathology(25) .....	27	26	-	-	-	-	-	-	-	-	-	25.5	-
Human/animal pharmacology .....	69	77	71	60	76	81	86	92	99	91	90	24.6	34.4
Human/animal physiology(26) .....	-	-	68	59	70	77	76	89	105	98	102	-	37.5
Animal physiology(26) .....	80	76	-	-	-	-	-	-	-	-	-	24.5	-
Plant physiology .....	11	13	24	23	12	18	15	23	15	19	19	16.2	29.2
Immunology .....	60	58	66	52	54	51	53	91	61	72	76	40.5	42.9
Microbiology(27) .....	-	-	117	121	113	118	103	120	124	116	150	-	40.2
Bacteriology(27) .....	-	-	4	4	4	2	6	2	2	4	5	-	45.5
Microbiology/bacteriology(27) .....	103	91	-	-	-	-	-	-	-	-	-	29.0	-
Molecular biology .....	69	81	76	103	95	115	116	130	153	152	182	36.9	37.8
Neurosciences .....	-	38	49	43	58	39	48	60	63	76	88	-	36.8
Nutritional sciences(28) .....	59	71	72	68	72	86	97	89	91	88	71	59.6	67.0
Parasitology .....	5	2	-	4	2	3	5	8	5	4	7	-	35.0
Toxicology(3) .....	-	-	16	25	24	33	34	30	39	36	30	-	34.9
Zoology, other(29) .....	-	-	63	42	46	44	44	43	35	37	39	-	31.0
Zoology(29) .....	47	45	-	-	-	-	-	-	-	-	-	23.7	-
Biological sci, general .....	59	62	60	56	62	73	81	97	77	142	112	28.9	40.3
Biological sci, other .....	46	49	39	38	34	46	35	63	46	47	52	29.9	36.4

See footnotes at end of table.

Table 2. Science and engineering (S&E) doctorates awarded to females, by subfield: 1981-91--continued

Subfield	Year of doctorate											Percent female	
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1981	1991
<b>SOCIAL SCIENCES</b>	820	840	920	917	950	1,035	936	1,045	1,036	1,040	1,199	26.0	36.3
Agricultural economics	13	20	18	29	21	16	23	31	25	27	36	7.7	21.8
Anthropology	152	138	175	171	181	197	181	170	148	173	209	41.2	61.5
Area studies	5	7	11	2	5	6	5	5	5	9	4	25.0	17.4
Criminology(30)	9	17	7	10	10	7	7	15	10	16	18	25.7	51.4
Demography(3)	-	-	12	8	9	6	7	11	10	11	16	-	59.3
Econometrics	1	2	4	4	2	2	4	4	2	3	5	5.9	20.8
Economics	100	98	129	120	122	163	136	163	171	170	173	12.4	20.3
Geography	20	19	37	21	29	39	26	33	25	35	33	18.3	30.6
History of science(31)	5	10	7	11	2	10	10	10	9	9	11	19.2	40.7
International relations	12	11	15	13	16	15	15	14	29	15	24	13.8	27.3
Linguistics	78	90	86	82	91	96	106	83	106	90	110	44.3	48.5
Political science/government(32)	-	-	83	97	107	117	111	96	107	108	118	-	27.2
Political science(32)	96	106	-	-	-	-	-	-	-	-	-	21.6	-
Public policy studies(3)	-	-	26	20	24	34	30	25	28	25	38	-	34.2
Sociology	242	214	216	226	234	215	168	238	222	207	231	40.0	49.6
Statistics	7	5	5	11	14	17	13	9	20	12	10	17.5	32.3
Urban studies(33)	17	25	22	21	21	16	22	31	23	21	21	18.1	23.6
Social sciences, general	5	14	3	6	8	13	6	13	9	9	17	22.7	47.2
Social sciences, other	58	64	64	65	54	66	66	94	87	100	125	43.6	56.3
<b>PSYCHOLOGY</b>	1,473	1,438	1,597	1,631	1,541	1,598	1,695	1,676	1,797	1,907	1,984	43.9	61.2
Clinical	557	517	594	598	591	602	667	611	711	782	840	44.2	64.5
Cognitive(3)	-	-	31	37	23	33	41	34	33	35	46	-	48.9
Comparative	3	6	4	9	2	6	6	4	1	3	5	27.3	71.4
Counseling(34)	160	156	199	230	215	237	254	261	284	281	306	45.6	61.8
Developmental(35)	121	125	148	156	112	117	139	131	116	112	120	60.2	76.9
Educational	77	75	75	110	78	58	50	65	60	69	64	42.8	58.2
Experimental	93	97	81	70	65	64	54	61	70	49	64	32.9	45.1
Industrial/organizational(36)	22	23	30	40	29	52	49	54	49	53	76	25.3	53.5
Physiological	34	23	27	20	35	30	32	45	33	28	21	33.3	46.7
Quantitative(3)	-	-	4	5	4	8	7	5	6	3	2	-	28.6
Personality	26	17	9	12	9	9	11	8	17	10	4	53.1	30.8
Psychometrics	10	1	8	3	3	7	3	6	3	4	3	37.0	33.3
School	73	86	72	50	54	59	53	66	69	53	57	54.9	69.5
Social	76	85	103	82	94	79	72	75	68	92	86	42.2	58.5
Psychology, general	133	105	133	134	125	149	170	192	200	231	182	47.7	56.7
Psychology, other	88	122	79	75	102	88	87	58	77	102	108	40.7	64.3

See footnotes at end of table.

Table 2. Science and engineering (S&amp;E) doctorates awarded to females, by subfield: 1981-91--continued

Subfield	Year of doctorate											Percent female	
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1981	1991
<b>TOTAL, ENGINEERING</b> .....	99	124	124	151	198	225	242	286	375	415	452	3.9	8.7
Aeronautical/astronautical(37) .....	-	1	2	2	5	1	10	9	8	4	7	-	3.4
Agricultural .....	2	2	1	1	3	1	3	3	6	7	8	3.1	9.5
Bioengineering/biomedical(38) .....	3	6	8	9	11	9	15	18	26	23	27	4.7	18.1
Ceramic .....	1	1	3	2	-	3	4	3	4	11	10	4.2	17.2
Chemical .....	11	17	22	25	35	53	56	60	74	71	72	3.7	11.6
Civil .....	6	12	12	19	18	19	17	25	45	39	30	2.1	5.9
Communications(3) .....	-	-	-	-	2	-	-	3	1	2	2	-	9.5
Computer .....	8	3	6	1	5	5	2	7	12	11	9	11.3	5.1
Electrical/electronics(39) .....	-	-	6	14	27	33	30	38	54	71	66	-	5.5
Electrical(39) .....	14	17	1	-	1	-	-	-	-	-	-	3.4	-
Electronics(39) .....	-	2	-	-	-	-	-	-	-	-	-	-	-
Engineering mechanics .....	1	5	2	9	4	4	3	3	7	9	7	1.3	6.2
Engineering physics .....	2	-	-	-	1	-	1	-	-	1	2	9.1	8.7
Engineering science(3) .....	4	5	1	6	2	3	-	3	3	6	2	-	4.8
Environmental health engin(40) .....	6	6	6	16	6	14	13	19	18	10	9	5.6	14.1
Industrial .....	11	13	22	17	23	18	36	25	35	31	56	9.1	10.4
Materials science .....	5	12	6	6	22	14	14	26	22	29	50	9.7	15.5
Mechanical .....	5	3	5	7	9	3	5	5	6	7	8	1.8	6.6
Metalurgical(41) .....	-	1	1	-	-	2	1	1	4	2	6	5.2	11.4
Mining/mineral(42) .....	-	-	-	-	-	-	-	-	1	1	-	-	15.8
Naval arch/marine engin(1) .....	6	7	5	6	3	6	2	4	7	9	4	-	-
Nuclear .....	-	-	-	-	-	-	-	-	2	2	1	4.6	3.7
Ocean(3) .....	7	5	5	-	8	11	7	4	2	2	1	-	4.8
Operations research .....	-	2	-	-	-	1	-	2	14	6	22	8.8	28.9
Petroleum(43) .....	-	-	-	-	-	1	-	2	1	-	1	-	3.6
Polymer(3) .....	-	-	1	2	6	7	4	3	5	7	7	-	16.7
Systems(44) .....	4	2	3	1	4	2	3	7	3	3	4	5.9	8.3
Engineering, general .....	1	1	1	-	-	5	8	2	2	10	6	2.8	7.7
Engineering, other .....	2	1	4	8	3	9	6	11	6	18	19	2.7	13.7
<b>TOTAL, NON-S&amp;E(45)</b> .....	5,776	5,823	5,909	5,995	5,932	6,220	6,191	6,235	6,499	6,807	7,008	43.2	51.1
<b>TOTAL, ALL FIELDS</b> .....	9,892	10,093	10,533	10,699	10,744	11,304	11,425	11,812	12,507	13,102	13,765	31.5	36.8

See footnotes at end of table.

## FOOTNOTES

[A hyphen (-) in a data column signifies that the subfield was not identified separately in the questionnaire for that year (e.g., the subfield "polymer physics" was introduced in 1983), or that this subfield was included in the questionnaire for that year but no doctorates were reported.]

- (1) This subfield was introduced in 1983 and deleted in 1991.
- (2) This subfield was changed from "nuclear structure" to "nuclear" in 1983.
- (3) This subfield was introduced in 1983.
- (4) This subfield was deleted in 1982.
- (5) This subfield was changed from "applied geology, geological engineering, and economic geology" to "applied geology" in 1983. "Applied geology" was deleted in 1991.
- (6) "Environmental sciences, general" and "environmental sciences, other" were replaced by "environmental sciences" in 1983.
- (7) "Structural geology" was discontinued in 1983, and "geology" was introduced.
- (8) This subfield was changed from "geophysics, solid earth" to "geophysics and seismology" in 1983.
- (9) "Marine sciences, other" was discontinued in 1983, and "marine sciences" was introduced.
- (10) This subfield had been deleted in 1976, but was restored in 1983.
- (11) "Earth science, general" and "earth science, other" were discontinued in 1983, and "geological sciences, general" and "geological sciences, other" were introduced.
- (12) This subfield was introduced in 1988.
- (13) This subfield was changed from "animal husbandry" to "animal breeding/genetics" in 1983.
- (14) "Animal science and animal nutrition" was separated into "animal nutrition" and "animal sciences, other" in 1983. In 1988 "dairy science" and "poultry science" were introduced.
- (15) "Fish and wildlife" was separated into two subfields in 1983. In 1988 "wildlife management" was discontinued, and "wildlife/range management" was introduced.
- (16) This subfield was changed from "food science and technology" to "food sciences" in 1983. In 1988 "food sciences" was separated into "food distribution," "food engineering," and "food sciences, other."
- (17) In 1988 "forestry science" was separated into "forestry biology," "forest engineering," "forest management," "wood science," "renewable natural resources," and "forestry and related sciences, other."
- (18) "Phytopathology" was discontinued in 1983, and subfields "plant breeding and genetics," "plant pathology," and "plant sciences, other" were introduced.
- (19) This subfield was introduced in 1988 and deleted in 1991.
- (20) This subfield was changed from "soils and soil science" to "soil sciences" in 1983. In 1988 "soil sciences" was separated into "soil chemistry/microbiology" and "soil sciences, other."
- (21) "Botany" was discontinued in 1983, and "botany, other" was introduced.

## FOOTNOTES (continued)

- (22) "Cytology" was discontinued in 1983, and "cell biology" was introduced.
- (23) This subfield was changed from "embryology" to "developmental biology/embryology" in 1990.
- (24) "Genetics" was separated into "plant genetics" and "human and animal genetics" in 1983.
- (25) "Pathology" was separated into "plant pathology" and "human and animal pathology" in 1983.
- (26) "Animal physiology" was discontinued in 1983, and "human and animal physiology" was introduced.
- (27) "Microbiology/bacteriology" was separated into two subfields in 1983.
- (28) This subfield was changed from "nutrition and dietetics" to "nutritional sciences" in 1983.
- (29) "Zoology" was discontinued in 1983, and "zoology, other" was introduced.
- (30) This subfield was introduced in 1980 as "criminology and criminal justice." In 1983 it was changed to "criminology."
- (31) The subfield "history and philosophy of science" was introduced in 1971. The name was changed to "history of science" in 1983.
- (32) "Political science" was discontinued in 1983, and "political science and government" was introduced.
- (33) This subfield was changed from "urban and regional planning" to "urban studies" in 1983.
- (34) This subfield was changed from "counseling and guidance" to "counseling" in 1983.
- (35) This subfield was changed from "developmental and gerontological" to "developmental" in 1983.
- (36) This subfield was changed from "industrial and personnel" to "industrial and organizational" in 1983.
- (37) "Aerospace" was added to "aeronautical/astronautical engineering" in 1983.
- (38) "Bioengineering" was added to "biomedical engineering" in 1983.
- (39) "Electrical" and "electronics" were merged in 1983.
- (40) This subfield was changed from "sanitary and environmental" to "environmental health" in 1983.
- (41) This subfield was changed from "metallurgy and physical metallurgical" to "metallurgical" in 1983.
- (42) This subfield was changed from "mining" to "mining and mineral" in 1983.
- (43) This subfield was changed from "fuel technology and petroleum engineering" to "petroleum" in 1983.
- (44) This subfield was changed from "systems design and systems science" to "systems" in 1983.
- (45) Non-S&E doctorates awarded include those whose field of specialization is unknown.

SOURCE: National Science Foundation/SRS, Survey of Earned Doctorates

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients: 1981-91

Citizenship status, sex, race/ethnicity, and year	MAJOR FIELD																	Total all fields	
	Total S&E	Physical sciences			Earth/ atmos/ ocean	Math	Comp/ info	Agric & biol sci		Soc sci	Psych	Engineering(1)				Non- S&E(2)			
		Sub- total	Phys- astr	Chem- istry				Sub- total	Agri- sci			Biol sci	Chem	Elec	Mech				
U.S. CITIZENS																			
TOTAL, MALE AND FEMALE																			
Total																			
1981	13,544	1,956	721	1,235	472	482	168	3,891	594	3,297	2,294	3,111	1,170	128	246	158	11,517	25,061	
1982	13,292	1,991	706	1,285	528	458	143	3,964	647	3,317	2,163	2,876	1,169	136	241	198	11,099	24,391	
1983	13,403	2,064	709	1,355	483	411	180	3,859	649	3,210	2,199	3,044	1,163	162	218	145	10,956	24,359	
1984	13,250	2,071	739	1,332	474	407	178	3,910	625	3,285	2,036	2,935	1,239	167	255	163	10,777	24,027	
1985	12,947	2,043	698	1,345	442	376	189	3,831	683	3,148	1,982	2,805	1,279	218	247	193	10,423	23,370	
1986	12,869	2,014	694	1,320	422	366	202	3,703	579	3,124	2,013	2,766	1,383	219	291	209	10,212	23,081	
1987	12,819	2,080	699	1,381	425	345	243	3,565	584	2,981	1,856	2,747	1,538	280	291	241	10,164	22,983	
1988	13,217	2,100	723	1,377	511	342	284	3,670	539	3,131	1,862	2,667	1,781	335	359	256	10,071	23,288	
1989	13,312	1,973	675	1,298	529	393	338	3,724	607	3,117	1,807	2,684	1,864	352	394	259	10,088	23,400	
1990	14,010	2,149	751	1,398	535	375	348	3,822	630	3,192	1,919	2,909	1,953	307	438	299	10,876	24,886	
1991	13,923	2,048	737	1,311	584	439	379	3,799	551	3,248	1,901	2,796	1,977	315	465	279	10,798	24,721	
Native American																			
1981	26	1	-	1	-	1	-	7	1	6	4	9	4	-	-	2	59	85	
1982	38	3	3	-	-	1	1	10	3	7	4	16	3	-	-	-	39	77	
1983	27	6	3	3	2	3	1	5	1	4	4	6	9	-	-	-	54	81	
1984	31	4	1	3	-	3	-	11	1	10	4	6	3	2	-	-	43	74	
1985	41	3	1	2	1	-	-	17	4	13	9	10	1	-	1	-	55	96	
1986	52	5	-	5	2	1	-	17	-	17	12	9	6	-	2	2	47	99	
1987	52	7	1	6	-	-	3	13	2	11	6	16	7	1	3	1	63	115	
1988	41	6	1	5	2	2	2	9	6	6	7	7	4	2	-	1	53	94	
1989	52	10	5	5	6	1	2	8	4	7	7	11	7	1	-	-	42	96	
1990	41	3	-	3	1	1	-	14	2	4	6	18	4	-	-	-	55	96	
1991	55	10	1	9	3	-	1	14	4	10	8	13	6	1	2	1	73	128	
Asian																			
1981	330	46	20	26	4	20	4	98	8	90	48	33	77	3	20	13	135	465	
1982	327	56	21	35	12	11	2	104	8	96	45	25	72	12	20	9	125	452	
1983	345	66	27	39	8	13	6	116	15	101	35	35	66	11	10	9	147	492	
1984	384	77	27	50	8	9	12	110	7	103	41	32	95	10	23	18	128	512	
1985	373	76	19	57	8	14	2	114	8	106	35	34	90	20	13	21	143	516	
1986	397	75	19	56	6	14	12	136	12	124	42	32	80	17	16	10	133	530	
1987	443	67	18	49	9	18	10	123	17	106	43	38	135	20	37	25	99	542	
1988	451	67	19	48	8	17	20	110	9	101	51	37	141	26	37	22	163	614	
1989	487	75	33	42	11	13	18	127	7	120	32	38	173	34	45	25	139	626	
1990	484	86	32	54	4	11	10	127	11	116	45	44	157	22	44	27	156	640	
1991	577	81	22	59	7	23	32	162	8	154	44	43	185	25	59	26	185	762	

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients: 1981-91--continued

Citizenship status, sex, race/ethnicity, and year	Major field														Total all fields		
	Total S&E	Physical sciences			Earth/ atmos/ ocean	Math	Comp/ info sci	Agric & biol sci		Soc sci	Psych	Sub- total	Engineering(1)			Non- S&E(2)	
		Sub- total	Phys- astr	Chem- istry				Sub- total	Agri sci				Chem	Elec			Mech
U.S. CITIZENS (con't.)																	
TOTAL, MALE AND FEMALE																	
Black																	
1981 .....	282	19	6	13	3	7	2	52	9	43	72	111	2	7	2	731	1,013
1982 .....	285	21	11	10	2	6	1	48	5	43	86	112	-	1	3	762	1,047
1983 .....	283	19	8	11	1	3	3	49	12	37	79	110	1	2	4	639	922
1984 .....	299	28	10	18	2	3	2	55	10	45	82	115	2	1	2	654	953
1985 .....	278	23	4	19	2	3	2	49	5	44	79	101	2	6	1	634	912
1986 .....	254	20	7	13	-	5	-	47	7	40	66	102	1	2	3	569	823
1987 .....	234	16	5	11	1	10	2	52	7	45	53	88	1	2	2	534	768
1988 .....	260	28	11	17	2	2	1	44	8	36	65	99	4	6	-	554	814
1989 .....	284	25	5	20	3	6	1	51	6	45	78	96	1	8	5	537	821
1990 .....	284	19	5	14	3	4	1	45	9	36	73	111	4	6	5	613	897
1991 .....	328	24	6	18	2	9	5	50	6	44	82	113	4	14	3	605	933
Hispanic																	
1981 .....	198	26	6	20	6	4	-	42	8	34	49	59	1	2	1	266	464
1982 .....	226	21	6	15	6	6	1	50	6	44	50	69	4	6	1	309	535
1983 .....	237	24	5	19	9	4	-	41	2	39	57	84	4	3	-	302	539
1984 .....	254	38	12	26	1	11	3	43	4	39	55	81	2	6	4	282	536
1985 .....	244	26	12	14	4	7	5	59	10	49	63	64	2	1	3	317	561
1986 .....	276	35	11	24	5	9	4	59	7	52	58	81	2	4	3	295	571
1987 .....	305	48	8	40	3	9	4	64	12	52	61	92	4	7	4	313	618
1988 .....	327	57	14	43	8	3	2	74	13	61	51	89	3	9	5	270	597
1989 .....	310	52	12	40	6	8	4	71	12	59	48	87	4	10	3	272	582
1990 .....	383	63	13	50	11	7	4	86	14	72	75	98	6	7	3	335	718
1991 .....	395	52	15	37	12	6	10	85	7	78	74	109	10	10	8	313	708
White																	
1981 .....	12,090	1,724	622	1,102	443	429	154	3,515	543	2,972	1,997	2,819	118	203	133	9,890	21,980
1982 .....	12,034	1,827	636	1,191	498	419	134	3,632	611	3,021	1,902	2,607	113	201	177	9,646	21,680
1983 .....	12,116	1,879	631	1,248	443	374	161	3,560	600	2,960	1,943	2,740	140	195	128	9,584	21,700
1984 .....	11,921	1,854	665	1,189	449	366	155	3,590	593	2,997	1,793	2,652	143	214	135	9,429	21,350
1985 .....	11,660	1,850	631	1,219	415	337	170	3,515	646	2,869	1,724	2,552	181	210	160	9,103	20,763
1986 .....	11,616	1,817	635	1,182	398	326	176	3,383	543	2,840	1,778	2,509	195	260	181	9,012	20,628
1987 .....	11,482	1,888	645	1,243	395	295	215	3,237	541	2,696	1,645	2,476	243	234	203	8,980	20,462
1988 .....	11,876	1,881	646	1,235	480	308	253	3,371	493	2,878	1,649	2,404	293	296	225	8,906	20,782
1989 .....	11,915	1,766	599	1,167	495	351	296	3,393	561	2,832	1,608	2,423	306	318	218	8,978	20,893
1990 .....	12,556	1,920	671	1,249	506	346	325	3,493	582	2,911	1,691	2,589	270	372	261	9,600	22,156
1991 .....	12,353	1,844	671	1,173	546	394	323	3,431	516	2,915	1,653	2,503	270	372	236	9,506	21,859

See footnotes at end of table.



Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients:  
1981-91--continued

Citizenship status, sex, race/ethnicity, and year	Major field																Total all fields	
	Total S&E	Physical sciences			Earth/ atmos/ ocean	Math	Comp/ info sci	Agric & biol sci		Soc sci	Psych	Sub- total	Engineering(1)			Non- S&E(2)		
		Sub- total	Phys& astr	Chem- istry				Sub- total	Agri- sci				Biol sci	Chem	Elec			Mech
U.S. CITIZENS (con't.)																		
TOTAL, MALE AND FEMALE																		
Unknown																		
1981 .....	618	140	67	73	16	21	8	177	25	152	124	80	52	4	14	7	436	1,054
1982 .....	382	63	29	34	10	15	4	120	14	106	76	47	47	7	13	8	218	600
1983 .....	395	70	35	35	20	17	9	88	19	69	81	66	44	6	8	4	230	625
1984 .....	361	70	24	46	14	15	6	101	10	91	61	49	45	8	11	4	241	602
1985 .....	351	65	31	34	12	15	10	77	10	67	72	44	56	13	16	8	171	522
1986 .....	274	62	22	40	11	11	10	61	10	51	57	33	29	2	4	10	156	430
1987 .....	303	54	22	32	17	13	9	76	5	71	48	37	49	6	13	6	175	478
1988 .....	262	61	32	29	11	10	7	59	10	49	39	31	44	7	11	3	125	387
1989 .....	264	45	21	24	8	15	17	73	19	54	34	29	43	6	13	8	120	384
1990 .....	262	58	30	28	10	6	8	63	10	53	29	49	39	5	9	3	117	379
1991 .....	215	37	22	15	14	7	8	57	10	47	40	15	37	6	8	5	116	331

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients:  
1981-91--continued

Citizenship status, sex, race/ethnicity, and year	Major field															
	Physical sciences				Earth/ atmos/ ocean				Comp/ info				Agric & biol sci			
	Sub- total	Phys- astr	Chem- istry	Earth/ atmos/ ocean	Math	Sci	Comp/ info	Sub- total	Agri- sci	Biol sci	Soc sci	Psych	Sub- total	Chem	Elec	Engi- neering(1)
Total S&E	Total S&E	Total S&E	Total S&E	Total S&E	Total S&E	Total S&E	Total S&E	Total S&E	Total S&E	Total S&E	Total S&E	Total S&E	Total S&E	Total S&E	Total S&E	Total S&E
U.S. CITIZENS (con't.)																
MALE																
Total	10,046	1,732	676	1,056	425	402	148	2,859	506	2,353	1,617	1,746	1,117	120	238	154
1981	9,652	1,727	651	1,076	436	386	126	2,851	530	2,321	1,475	1,556	1,095	127	232	187
1982	9,457	1,779	658	1,121	402	335	153	2,688	549	2,139	1,444	1,576	1,080	149	212	187
1983	9,287	1,768	685	1,083	378	333	153	2,773	531	2,242	1,291	1,440	1,151	151	247	139
1984	9,018	1,720	636	1,084	354	306	165	2,679	563	2,116	1,238	1,396	1,160	194	232	152
1985	8,783	1,682	638	1,044	344	297	165	2,512	463	2,049	1,212	1,330	1,241	188	272	178
1986	8,718	1,719	634	1,085	342	280	193	2,372	488	1,904	1,144	1,259	1,409	239	278	196
1987	8,933	1,738	666	1,072	395	283	245	2,380	420	1,960	1,099	1,190	1,603	293	335	231
1988	9,152	1,772	616	956	414	300	266	2,378	451	1,927	1,060	1,146	1,615	295	371	240
1989	9,182	1,734	688	1,046	410	293	268	2,441	483	1,958	1,140	1,191	1,705	258	403	276
1990	8,970	1,648	666	982	441	351	298	2,414	427	1,987	1,064	1,044	1,710	270	433	246
1991																
Native American																
1981	20	1	-	1	-	1	-	6	1	5	4	4	4	-	-	2
1982	27	3	3	3	2	-	1	4	2	4	3	10	3	-	-	-
1983	22	6	3	3	-	3	-	4	1	3	2	7	-	-	-	-
1984	26	4	1	3	-	-	-	8	4	7	3	5	3	2	-	-
1985	21	3	1	2	1	-	-	11	4	4	3	5	1	-	1	-
1986	33	3	-	3	1	-	-	9	2	11	9	4	5	-	2	-
1987	31	5	1	4	1	-	2	9	4	7	4	4	7	1	3	1
1988	28	5	-	5	1	2	1	8	4	4	4	3	4	2	-	1
1989	33	10	5	5	4	-	1	5	1	4	5	3	5	1	-	1
1990	24	3	-	3	-	1	-	7	4	3	3	6	4	-	-	-
1991	36	8	1	7	2	-	1	10	4	6	6	5	4	-	1	1
Asian																
1981	246	41	19	22	3	14	3	65	5	60	33	16	71	2	19	13
1982	223	37	15	22	7	9	2	61	6	55	32	6	69	12	19	9
1983	235	50	23	27	4	12	3	67	9	58	17	19	63	11	10	8
1984	269	57	23	34	6	8	11	67	6	61	25	16	79	7	19	17
1985	260	53	16	37	7	12	2	74	7	67	18	18	76	15	11	20
1986	282	55	16	39	5	12	12	82	10	72	27	15	74	15	15	10
1987	320	52	16	36	8	14	6	75	14	61	27	14	124	18	35	25
1988	335	52	18	34	6	13	19	69	5	64	31	13	132	24	34	22
1989	365	62	28	34	9	12	14	77	9	73	21	20	150	28	41	24
1990	357	67	26	41	3	8	9	86	9	77	28	19	137	15	41	25
1991	395	62	17	45	4	18	25	94	6	88	21	12	159	19	56	23
Total																
1981	16,360	3,114	154	238	120	238	154	6,314	1,117	1,117	1,617	1,746	1,117	120	238	154
1982	15,562	5,910	187	232	127	232	187	5,910	1,095	1,095	1,475	1,556	1,095	127	232	187
1983	15,120	5,663	139	212	149	212	139	5,663	1,080	1,080	1,444	1,576	1,080	149	212	139
1984	14,730	5,443	152	247	151	247	152	5,443	1,151	1,151	1,291	1,440	1,151	151	247	152
1985	14,223	5,205	178	232	194	232	178	5,205	1,160	1,160	1,238	1,396	1,160	194	232	178
1986	13,636	4,853	196	272	188	272	196	4,853	1,241	1,241	1,212	1,330	1,241	188	272	196
1987	13,575	4,857	231	278	239	278	231	4,857	1,409	1,409	1,144	1,259	1,409	239	278	231
1988	13,725	4,792	240	335	293	335	240	4,792	1,603	1,603	1,099	1,190	1,603	293	335	240
1989	13,397	4,646	240	371	295	371	240	4,646	1,615	1,615	1,060	1,146	1,615	295	371	240
1990	14,151	4,969	276	403	258	403	276	4,969	1,705	1,705	1,140	1,191	1,705	258	403	276
1991	13,885	4,915	246	433	270	433	246	4,915	1,710	1,710	1,064	1,044	1,710	270	433	246

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients:  
1981-91--continued

Citizenship status, sex, race/ethnicity, and year	Major field																Total all fields	
	Total S&E	Physical sciences			Earth/ atmos/ ocean	Math	Comp/ info sci	Agric & biol sci		Soc sci	Psych	Sub- total	Engineering(1)					Non- S&E(2)
		Sub- total	Phys- astr	Chem- istry				Sub- total	Agri- sci				Biol sci	Chem	Elec	Mech		
U.S. CITIZENS (con't.)																		
MALE																		
Black																		
1981 .....	157	16	5	11	3	6	1	24	9	15	44	47	16	2	7	2	342	
1982 .....	159	16	10	6	2	4	1	24	4	20	54	49	9	-	1	3	324	
1983 .....	150	17	8	9	1	2	1	27	11	16	49	35	18	1	2	3	263	
1984 .....	156	26	10	16	1	2	1	28	8	20	46	41	11	2	1	2	271	
1985 .....	152	18	3	15	2	3	2	28	4	24	44	39	16	1	6	1	227	
1986 .....	124	16	6	10	-	3	-	25	4	21	35	36	10	-	2	2	199	
1987 .....	115	13	4	9	-	8	1	27	4	23	25	30	11	3	-	2	202	
1988 .....	143	21	10	11	2	2	1	22	4	18	35	45	15	3	4	-	172	
1989 .....	142	18	5	13	2	4	-	27	5	22	35	35	21	-	8	5	185	
1990 .....	150	13	5	8	1	3	1	24	8	16	43	42	23	3	5	5	200	
1991 .....	171	20	6	14	1	5	1	25	5	20	46	38	35	3	12	2	214	
Hispanic																		
1981 .....	140	22	6	16	6	3	-	31	8	23	36	30	12	1	2	1	135	
1982 .....	160	15	4	11	4	5	1	33	5	28	38	42	22	4	6	1	184	
1983 .....	140	11	5	6	9	2	-	22	2	20	40	41	15	3	3	-	148	
1984 .....	173	30	11	19	1	10	3	30	4	26	40	41	18	1	6	4	141	
1985 .....	148	20	10	10	4	5	3	35	7	28	40	25	16	2	1	3	152	
1986 .....	177	27	9	18	4	6	4	33	4	29	38	43	22	2	6	3	125	
1987 .....	179	33	6	27	3	7	4	41	8	33	39	31	21	6	4	4	153	
1988 .....	199	44	12	32	4	3	2	51	12	39	21	37	37	3	8	4	124	
1989 .....	180	37	12	25	4	4	1	53	9	44	26	27	28	2	9	2	129	
1990 .....	232	41	11	30	7	4	3	55	11	44	44	45	33	6	7	2	146	
1991 .....	233	42	13	29	11	3	9	50	6	44	35	46	37	6	10	6	125	
White																		
1981 .....	8,980	1,524	585	939	397	359	136	2,599	460	2,139	1,402	1,597	966	112	197	129	5,479	
1982 .....	8,777	1,598	591	1,007	415	355	117	2,632	501	2,131	1,290	1,424	946	104	193	166	5,213	
1983 .....	8,592	1,628	585	1,043	372	303	139	2,499	512	1,987	1,274	1,434	943	130	190	124	5,018	
1984 .....	8,368	1,588	618	970	359	297	132	2,559	503	2,056	1,134	1,302	997	131	210	125	4,803	
1985 .....	8,163	1,568	578	990	331	272	149	2,477	534	1,943	1,082	1,284	1,000	165	199	146	4,647	
1986 .....	7,955	1,528	587	941	323	266	139	2,315	435	1,880	1,065	1,215	1,104	170	243	169	4,352	
1987 .....	7,830	1,567	585	982	314	238	172	2,163	437	1,726	1,018	1,159	1,199	205	223	193	4,338	
1988 .....	8,019	1,559	595	964	374	253	215	2,185	387	1,798	980	1,078	1,375	255	279	210	4,324	
1989 .....	7,820	1,402	545	857	387	268	235	2,161	416	1,745	947	1,049	1,371	258	300	201	4,169	
1990 .....	8,211	1,558	616	942	391	272	248	2,217	441	1,776	999	1,056	1,470	229	341	242	4,468	
1991 .....	7,965	1,482	608	874	411	318	255	2,196	398	1,798	925	935	1,443	236	347	209	4,399	

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients: 1981-91--continued

Citizenship status, sex, race/ethnicity, and year	Major field																Total all fields	
	Total S&E	Physical sciences			Earth/ atmos/ ocean	Math	Comp/ info sci	Agric & biol sci		Soc sci	Psych	Engineering(1)				Non- S&E(2)		
		Sub- total	Phys- astr	Chem- istry				Sub- total	Agric sci			Biol sci	Chem	Elec	Mech			
U.S. CITIZENS (con't.)																		
MALE																		
Unknown																		
1981 .....	503	128	61	67	16	19	8	134	23	111	98	52	48	3	13	7	253	756
1982 .....	306	58	28	30	8	12	4	95	12	83	58	25	46	7	13	8	114	420
1983 .....	318	67	34	33	14	16	9	69	14	55	62	40	41	4	7	4	129	447
1984 .....	295	63	22	41	11	13	6	81	9	72	43	35	43	8	11	4	131	426
1985 .....	274	58	28	30	9	14	9	57	7	50	51	25	51	11	14	8	91	365
1986 .....	212	53	20	33	11	11	10	46	10	36	38	17	26	1	4	10	87	299
1987 .....	243	49	22	27	17	13	8	57	3	54	31	21	47	6	13	6	84	327
1988 .....	209	57	31	26	8	10	7	45	8	37	28	14	40	6	10	3	69	278
1989 .....	211	43	21	22	8	12	15	55	16	39	26	12	40	6	13	8	71	282
1990 .....	208	52	30	22	8	5	7	52	10	42	23	23	38	5	9	2	58	266
1991 .....	170	34	21	13	12	7	7	39	8	31	31	8	32	6	7	5	66	236

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients:  
1981-91--continued

Citizenship status, sex, race/ethnicity, and year	Major field																Total all fields	
	Total S&E	Physical sciences		Earth/ atmos/ ocean	Math	Comp/ info	Agric. & biol sci		Soc sci	Psych	Sub- total	Engineering(1)			Non- S&E(2)			
		Sub- total	Phys- astr				Chem- istry	Sub- total				Agri- sci	Biol sci	Chem		Elec		Mech
U.S. CITIZENS (con't.)																		
FEMALE																		
Total																		
1981	3,498	224	45	179	47	80	20	1,032	88	944	677	1,365	53	8	8	4	5,203	8,701
1982	3,640	264	55	209	92	72	17	1,113	117	996	688	1,320	74	9	9	11	5,189	8,829
1983	3,946	285	51	234	81	76	27	1,171	100	1,071	755	1,468	83	13	6	6	5,293	9,239
1984	3,963	303	54	249	96	74	25	1,137	94	1,043	745	1,495	88	16	8	11	5,334	9,297
1985	3,929	323	62	261	88	70	24	1,152	120	1,032	744	1,409	119	24	15	15	5,218	9,147
1986	4,086	332	56	276	78	69	37	1,191	116	1,075	801	1,436	142	31	19	13	5,359	9,445
1987	4,101	361	65	296	83	65	50	1,193	116	1,077	712	1,488	149	41	13	10	5,307	9,408
1988	4,284	362	57	305	116	59	39	1,290	119	1,171	763	1,477	178	42	24	16	5,279	9,563
1989	4,561	401	59	342	115	93	72	1,346	156	1,190	747	1,538	249	57	23	19	5,442	10,003
1990	4,828	415	63	352	125	82	80	1,381	147	1,234	779	1,718	248	49	35	23	5,907	10,735
1991	4,953	400	71	329	143	88	81	1,385	124	1,261	837	1,752	267	46	32	33	5,883	10,836
Native American																		
1981	6	-	-	-	-	-	-	1	-	1	-	5	-	-	-	-	23	29
1982	11	-	-	-	-	-	-	4	1	3	1	6	-	-	-	-	22	33
1983	5	-	-	-	-	-	-	1	-	1	2	2	-	-	-	-	26	31
1984	5	-	-	-	-	-	-	3	-	3	1	1	-	-	-	-	15	20
1985	20	-	-	-	-	-	-	9	-	9	6	5	-	-	-	-	36	56
1986	19	2	-	2	1	1	1	6	-	6	3	5	1	-	-	-	22	41
1987	21	2	-	2	-	-	1	4	-	4	2	12	-	-	-	-	32	53
1988	13	1	1	-	1	-	-	4	2	2	3	4	-	-	-	-	29	42
1989	19	-	-	-	2	-	1	4	1	3	2	8	2	-	-	-	26	45
1990	17	-	-	-	1	-	-	4	1	1	3	12	-	-	-	-	27	44
1991	19	2	-	2	1	-	-	4	-	4	2	8	2	1	1	-	36	55
Asian																		
1981	84	5	1	4	1	6	1	33	3	30	15	17	6	1	1	-	66	150
1982	104	19	6	13	5	2	-	43	2	41	13	19	3	-	-	-	67	171
1983	110	16	4	12	4	1	3	49	6	43	18	16	3	-	-	1	70	180
1984	115	20	4	16	2	1	1	43	1	42	16	16	16	3	4	1	59	174
1985	113	23	3	20	1	2	-	40	1	39	17	16	14	5	2	1	74	187
1986	115	20	3	17	1	2	-	54	2	52	15	17	6	2	2	-	68	183
1987	123	15	2	13	1	4	4	48	3	45	16	24	11	2	2	1	50	173
1988	116	15	1	14	2	4	1	41	4	37	20	24	9	2	3	-	84	200
1989	122	13	5	8	2	1	4	50	3	47	11	18	23	6	4	1	63	185
1990	127	19	6	13	1	3	1	41	2	39	17	25	20	7	3	2	87	214
1991	182	19	5	14	3	5	7	68	2	66	23	31	26	6	3	3	111	293

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients:  
1981-91--continued

Citizenship status, sex, race/ethnicity, and year	Major field														Total all fields		
	Total S&E	Physical sciences			Earth/ atmos/ ocean	Math	Comp/ info sci	Agric & biol sci			Soc sci	Psych	Engineering(1)			Non- S&E(2)	
		Sub- total	Phys- astr	Chem- istry				Sub- total	Agri- sci	Biol sci			Chem	Elec			Mech
U.S. CITIZENS (cont.)																	
FEMALE																	
Black																	
1981 .....	125	3	1	2	-	1	1	28	-	28	28	64	-	-	-	389	514
1982 .....	126	5	1	4	-	2	-	24	1	23	32	63	-	-	-	438	564
1983 .....	133	2	-	2	-	1	2	22	1	21	30	75	-	-	1	376	509
1984 .....	143	2	-	2	1	1	1	27	2	25	36	74	-	-	-	383	526
1985 .....	126	5	1	4	-	-	-	21	1	20	35	62	1	-	-	407	533
1986 .....	130	4	1	3	-	3	-	22	3	19	31	66	4	-	1	370	500
1987 .....	119	3	1	2	1	2	1	25	3	22	28	58	-	-	-	332	451
1988 .....	117	7	1	6	-	2	-	22	4	18	30	54	1	2	-	382	499
1989 .....	142	7	-	7	1	2	1	24	1	23	43	61	1	-	-	352	494
1990 .....	134	6	-	6	2	1	-	21	1	20	30	69	1	1	-	413	547
1991 .....	157	4	-	4	1	4	4	25	1	24	36	75	1	2	1	391	548
Hispanic																	
1981 .....	58	4	-	4	-	1	-	11	-	11	13	29	-	-	-	131	189
1982 .....	66	6	2	4	2	1	-	17	1	16	12	27	-	-	-	125	191
1983 .....	97	13	-	13	-	2	-	19	-	19	17	43	1	-	-	154	251
1984 .....	81	8	1	7	-	1	-	13	-	13	15	40	1	-	-	141	222
1985 .....	96	6	2	4	-	2	2	24	3	21	23	39	-	-	-	165	261
1986 .....	99	8	2	6	1	3	-	26	3	23	20	38	3	2	1	170	269
1987 .....	126	15	2	13	-	2	-	23	4	19	22	61	1	-	-	160	286
1988 .....	128	13	2	11	4	4	-	23	1	22	30	52	1	1	1	146	274
1989 .....	130	15	-	15	2	4	3	18	3	15	22	60	2	2	1	143	273
1990 .....	151	22	2	20	4	3	1	31	3	28	31	53	-	-	1	189	340
1991 .....	162	10	2	8	1	3	1	35	1	34	39	63	4	-	2	188	350
White																	
1981 .....	3,110	200	37	163	46	70	18	916	83	833	595	1,222	6	6	4	4,411	7,521
1982 .....	3,257	229	45	184	83	64	17	1,000	110	890	612	1,183	9	8	11	4,433	7,690
1983 .....	3,524	251	46	205	71	71	22	1,061	88	973	669	1,306	10	5	4	4,566	8,090
1984 .....	3,553	266	47	219	90	69	23	1,031	90	941	659	1,350	12	4	10	4,626	8,179
1985 .....	3,497	282	53	229	84	65	21	1,038	112	926	642	1,268	16	11	14	4,456	7,953
1986 .....	3,661	289	48	241	75	60	37	1,068	108	960	713	1,294	25	17	12	4,660	8,321
1987 .....	3,652	321	60	261	81	57	43	1,074	104	970	627	1,317	38	11	10	4,642	8,294
1988 .....	3,857	322	51	271	106	55	38	1,186	106	1,080	669	1,326	38	17	15	4,582	8,439
1989 .....	4,095	364	54	310	108	83	61	1,232	145	1,087	661	1,374	48	18	17	4,809	8,904
1990 .....	4,345	362	55	307	115	74	77	1,276	141	1,135	692	1,533	41	31	19	5,132	9,477
1991 .....	4,388	362	63	299	135	76	68	1,235	118	1,117	728	1,568	34	25	27	5,107	9,495

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients:  
1981-91--continued

Citizenship status, sex, race/ethnicity, and year	Major field														Total all fields		
	Total S&E	Physical sciences			Earth/ atmos/ ocean	Math	Comp/ info sci	Agric & biol sci		Soc sci	Psych	Engineering(1)				Non- S&E(2)	
		Sub- total	Phys- astr	Chem- istry				Sub- total	Agri sci			Biol sci	Sub- total	Chem			Elec
U.S. CITIZENS (con't.)																	
FEMALE																	
Unknown																	
1981 .....	115	12	6	6	-	2	-	43	2	41	26	28	4	1	1	-	183
1982 .....	76	5	1	4	2	3	-	25	2	23	18	22	1	-	-	-	104
1983 .....	77	3	1	2	6	1	-	19	5	14	19	26	3	2	1	-	101
1984 .....	66	7	2	5	3	2	-	20	1	19	18	14	2	-	-	-	110
1985 .....	77	7	3	4	3	1	1	20	3	17	21	19	5	2	2	-	80
1986 .....	62	9	2	7	-	-	-	15	-	15	19	16	3	1	-	-	157
1987 .....	60	5	-	5	-	-	-	19	2	17	17	16	2	-	-	-	69
1988 .....	53	4	1	3	3	-	-	14	2	12	11	17	4	1	1	-	91
1989 .....	53	2	-	2	-	3	-	18	3	15	8	17	3	-	-	-	56
1990 .....	54	6	-	6	2	1	1	11	-	11	6	26	1	-	-	1	49
1991 .....	45	3	1	2	2	-	-	18	2	16	9	7	5	-	-	-	59
																	50
																	95

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients:  
1981-91--continued

Citizenship status, sex, race/ethnicity, and year	Major field																	
	Total S&E	Physical sciences			Earth/ atmos/ ocean	Math	Comp/ info sci	Agric & biol sci		Soc sci	Psych	Engineering(1)			Non- S&E(2)	Total all fields		
		Sub- total	Phys- astr	Chem- istry				Sub- total	Agri sci			Biol sci	Chem	Elec			Mech	
NON-U.S. CITIZENS, PERMANENT VISAS																		
TOTAL, MALE AND FEMALE																		
Total																		
1981 .....	893	147	53	94	16	43	20	159	35	124	160	47	301	43	58	44	388	1,281
1982 .....	854	119	35	84	29	41	12	140	23	117	170	47	296	37	62	65	374	1,228
1983 .....	898	120	51	69	30	46	27	150	36	114	142	64	319	38	69	47	377	1,275
1984 .....	835	119	36	83	25	36	17	149	35	114	164	51	274	32	59	39	389	1,224
1985 .....	929	135	48	87	32	42	24	151	43	108	171	59	315	39	65	58	395	1,324
1986 .....	987	133	40	93	24	36	24	165	48	117	174	65	343	51	70	58	445	1,432
1987 .....	1,086	147	56	91	25	51	32	208	48	160	209	59	355	48	60	67	492	1,578
1988 .....	1,128	136	62	74	31	44	42	263	71	192	185	61	366	44	90	71	495	1,623
1989 .....	1,121	146	61	85	30	35	58	227	45	182	206	54	365	55	84	66	505	1,626
1990 .....	1,186	167	69	98	23	47	55	246	57	189	188	73	387	42	89	68	509	1,695
1991 .....	1,252	178	69	109	26	55	62	263	56	207	227	60	381	44	113	59	562	1,814
Native American																		
1981 .....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1982 .....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1983 .....	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1
1984 .....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1985 .....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1986 .....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1987 .....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1988 .....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1989 .....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1990 .....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1991 .....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
Asian																		
1981 .....	491	103	36	67	10	20	12	83	17	66	47	8	208	39	38	30	117	608
1982 .....	438	75	22	53	15	21	10	78	15	63	59	6	174	25	36	32	114	552
1983 .....	433	70	26	44	18	21	14	81	18	63	39	9	181	21	48	25	118	551
1984 .....	390	67	20	47	11	21	8	68	13	55	49	11	155	24	36	19	117	507
1985 .....	435	74	19	55	13	19	15	61	16	45	52	10	191	28	33	37	118	553
1986 .....	410	71	18	53	8	14	25	53	10	43	48	9	182	37	45	21	118	528
1987 .....	478	76	17	59	9	23	16	85	21	64	68	9	192	29	30	36	147	625
1988 .....	461	70	33	37	7	16	24	91	21	70	52	10	191	32	46	35	160	621
1989 .....	492	80	26	54	12	11	34	95	16	79	56	17	187	33	39	41	143	635
1990 .....	515	76	31	45	13	16	38	105	21	84	58	9	200	24	49	41	147	662
1991 .....	574	86	27	59	10	34	33	116	15	101	66	13	216	18	65	34	155	729

See footnotes at end of table.



Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients:  
1981-91--continued

Citizenship status, sex, race/ethnicity, and year	Total S&E	Major field											Total all fields	
		Physical sciences			Earth/ atmos/ ocean	Math	Comp/ info sci	Agric & biol sci		Engineering(1)				Non- S&E(2)
		Sub- total	Phys- astr	Chem- istry				Sub- total	Agri- sci	Bio- sci	Sub- total	Chem		
NON-U.S. CITIZENS, PERMANENT VISAS (con't.)														
TOTAL, MALE AND FEMALE														
Black														
1981 .....	50	5	-	5	1	2	-	9	2	7	3	-	-	47
1982 .....	51	5	-	5	1	-	-	8	2	6	11	1	3	45
1983 .....	39	6	1	5	-	-	-	9	-	9	10	2	-	44
1984 .....	58	6	1	5	1	1	1	13	8	5	3	-	2	44
1985 .....	79	4	-	4	2	4	1	20	11	9	15	2	2	52
1986 .....	64	5	1	4	1	1	1	17	9	8	10	2	2	62
1987 .....	74	4	2	2	1	1	-	21	6	15	13	-	3	65
1988 .....	86	5	1	4	1	2	1	24	12	12	12	2	2	66
1989 .....	68	6	-	6	1	2	-	19	8	11	9	2	1	73
1990 .....	80	11	1	10	-	-	-	20	6	14	12	3	1	69
1991 .....	92	7	3	4	1	2	3	24	11	13	12	4	-	57
Hispanic														
1981 .....	40	4	2	2	-	1	-	14	7	7	4	-	-	22
1982 .....	43	4	3	1	1	-	-	4	1	3	13	1	1	36
1983 .....	45	2	-	2	2	3	-	8	4	4	11	2	2	24
1984 .....	41	9	2	7	1	1	-	9	4	5	12	1	2	30
1985 .....	46	4	1	3	2	5	1	12	2	10	6	-	3	27
1986 .....	66	5	4	1	-	3	3	24	10	14	10	-	2	73
1987 .....	49	8	4	4	2	2	-	13	3	10	10	4	1	41
1988 .....	67	6	1	5	-	1	-	23	8	15	3	2	4	91
1989 .....	69	7	4	3	3	3	-	19	6	13	4	2	4	32
1990 .....	76	9	2	7	2	3	1	25	9	16	14	4	3	43
1991 .....	79	11	4	7	4	3	1	23	8	15	15	1	3	41
White														
1981 .....	298	33	13	20	5	19	8	51	8	43	84	4	20	192
1982 .....	296	32	9	23	12	18	2	46	5	41	85	10	17	25
1983 .....	362	38	24	14	10	21	13	48	13	35	112	12	19	183
1984 .....	325	34	12	22	12	14	8	56	9	47	95	7	17	19
1985 .....	344	50	26	24	15	13	7	57	13	44	91	9	25	189
1986 .....	398	41	15	26	15	17	17	62	14	48	125	10	20	190
1987 .....	438	54	30	24	13	24	14	75	13	62	138	13	22	198
1988 .....	450	46	24	22	20	24	12	113	25	88	143	6	37	216
1989 .....	450	51	30	21	14	18	23	82	10	72	124	15	37	224
1990 .....	474	66	32	34	8	26	14	85	19	66	150	14	34	226
1991 .....	471	70	33	37	11	16	25	91	18	73	129	20	41	232

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients: 1981-91--continued

Citizenship status, sex, race/ethnicity, and year	Major field														Total all fields		
	Total S&E	Physical sciences			Earth/ atmos/ ocean	Math	Comp/ info sci	Agric & biol sci		Engineering(1)			Non- S&E(2)				
		Sub- total	Phys& astr	Chem- istry				Sub- total	Agri sci	Biol sci	Sub- total	Chem		Elec Mech			
NON-U.S. CITIZENS, PERMANENT VISAS (con't.)																	
TOTAL, MALE AND FEMALE																	
Unknown																	
1981 .....	14	2	2	-	-	1	-	1	1	2	-	2	13	-	5	10	24
1982 .....	26	3	1	2	-	2	-	4	4	3	-	4	4	1	1	12	38
1983 .....	18	4	-	4	-	1	-	1	1	2	-	4	4	1	2	8	26
1984 .....	21	3	1	2	-	-	-	1	1	2	-	-	9	-	2	9	30
1985 .....	25	3	2	1	-	1	-	1	1	-	-	2	12	-	2	8	33
1986 .....	49	11	2	9	-	1	-	1	5	4	-	3	16	2	1	26	75
1987 .....	47	5	3	2	-	1	2	5	9	9	-	2	13	2	4	22	69
1988 .....	64	9	3	6	3	1	5	7	7	7	2	3	19	2	5	13	77
1989 .....	42	2	1	1	-	1	1	7	5	7	1	4	12	1	4	20	62
1990 .....	41	5	3	2	-	2	2	9	2	9	-	2	10	-	2	20	61
1991 .....	36	4	2	2	-	-	-	5	4	5	1	1	12	1	4	18	54

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients:  
1981-91--continued

Citizenship status, sex, race/ethnicity, and year	Major field															Total all fields		
	Total S&E	Physical sciences			Earth/ atmos/ ocean	Math	Comp/ info sci	Agric & biol sci		Engineering(1)				Non- S&E(2)				
		Sub- total	Phys& astr	Chem- istry				Sub- total	Agri sci	Biol sci	Soc sci	Psych	Sub- total		Chem		Elec	Mech
NON-U.S. CITIZENS, PERMANENT VISAS (con't.)																		
MALE																		
Total																		
1981	721	119	45	74	15	37	16	104	31	73	286	42	56	44	252	973		
1982	692	99	30	69	25	33	12	90	14	76	282	35	59	61	223	915		
1983	716	99	45	54	23	36	24	94	31	63	311	36	68	47	237	953		
1984	671	97	31	66	24	24	15	95	29	66	261	30	58	38	221	892		
1985	744	112	42	70	28	30	24	99	37	62	298	37	64	55	255	999		
1986	783	94	34	60	21	32	41	117	41	76	323	46	66	58	284	1,067		
1987	828	110	50	60	18	39	28	131	38	93	330	40	59	66	289	1,117		
1988	872	96	45	51	27	33	35	173	62	111	348	37	88	70	293	1,165		
1989	848	111	49	62	24	27	46	133	37	96	339	47	79	66	291	1,139		
1990	901	119	52	67	23	36	45	155	45	110	359	34	87	67	286	1,187		
1991	905	136	59	77	17	36	51	155	47	108	345	36	110	56	291	1,196		
Native American																		
1981	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
1982	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
1983	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1		
1984	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
1985	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
1986	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
1987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
1988	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
1989	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
1990	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
1991	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Asian																		
1981	408	84	32	52	9	16	11	51	15	36	197	38	36	30	91	499		
1982	367	60	18	42	14	16	10	53	8	45	168	25	35	30	77	444		
1983	354	58	25	33	14	16	13	45	15	30	178	21	47	25	77	431		
1984	319	53	17	36	11	12	7	38	10	28	148	22	35	19	70	389		
1985	360	56	14	42	13	15	15	39	12	27	184	27	32	37	77	437		
1986	333	50	15	35	8	11	22	36	8	28	173	34	42	21	84	417		
1987	371	55	14	41	7	16	14	49	17	32	181	26	29	36	84	455		
1988	356	43	20	23	5	9	19	52	18	34	182	29	45	35	100	456		
1989	374	57	18	39	10	9	28	50	13	37	176	31	36	41	85	459		
1990	394	53	24	29	13	12	32	53	17	36	187	20	47	40	86	480		
1991	393	58	20	38	7	21	25	51	10	41	195	16	63	34	86	479		

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients:  
1981-91--continued

Citizenship status, sex, race/ethnicity, and year	Major field														Total all fields		
	Total S&E	Physical sciences			Earth/ atmos/ ocean	Math	Comp/ info sci	Agric & biol sci		Engineering(1)			Non- S&E(2)				
		Sub- total	Phys- astr	Chem- istry				Sub- total	Agri- sci	Biol sci	Soc sci	Psych		Sub- total		Chem	Elec Mech
NON-U.S. CITIZENS, PERMANENT VISAS (con't.)																	
MALE																	
Black																	
1981 .....	48	5	-	5	1	2	-	9	2	7	26	-	-	3	32	80	
1982 .....	47	5	-	5	1	-	-	6	2	4	22	1	3	11	34	81	
1983 .....	38	6	1	5	-	-	-	8	-	8	12	2	-	10	35	73	
1984 .....	49	6	1	5	1	1	1	11	7	4	22	-	2	3	32	81	
1985 .....	72	2	-	2	2	4	1	19	11	8	27	2	2	14	45	117	
1986 .....	56	5	1	4	1	1	1	14	9	5	18	2	-	10	50	106	
1987 .....	66	4	2	2	1	1	-	18	6	12	25	-	2	13	52	118	
1988 .....	74	4	1	3	1	2	1	18	11	7	35	2	-	12	52	126	
1989 .....	65	6	-	6	1	1	-	18	8	10	29	2	1	9	60	125	
1990 .....	71	10	1	9	-	-	-	19	6	13	30	3	1	11	57	128	
1991 .....	78	6	3	3	1	2	3	18	11	7	35	4	-	12	49	127	
Hispanic																	
1981 .....	31	4	2	2	-	1	-	12	7	5	6	-	-	4	16	47	
1982 .....	34	3	2	1	1	-	-	2	-	2	13	-	1	11	18	52	
1983 .....	28	1	-	1	2	3	-	5	3	2	5	2	2	10	17	45	
1984 .....	32	7	2	5	1	-	-	7	4	3	6	1	1	10	15	47	
1985 .....	31	3	1	2	1	2	1	9	1	8	6	-	2	6	19	50	
1986 .....	50	4	3	1	-	3	3	17	7	10	9	-	2	10	21	71	
1987 .....	34	6	4	2	1	2	-	8	3	5	8	2	1	8	16	50	
1988 .....	47	3	-	3	-	1	-	17	7	10	4	2	4	20	18	65	
1989 .....	47	4	3	1	2	3	-	13	6	7	10	2	3	12	22	69	
1990 .....	52	5	2	3	2	2	1	17	6	11	8	-	3	12	18	70	
1991 .....	64	10	4	6	3	2	1	18	6	12	13	1	3	12	25	89	
White																	
1981 .....	221	24	9	15	5	17	5	31	7	24	48	4	20	80	110	331	
1982 .....	224	28	9	19	9	16	2	26	4	22	49	9	16	80	85	309	
1983 .....	279	31	19	12	7	16	11	33	13	20	52	10	19	108	102	381	
1984 .....	251	28	10	18	11	11	7	36	7	29	51	7	17	91	99	350	
1985 .....	258	48	25	23	12	8	7	31	12	19	52	8	25	82	109	367	
1986 .....	301	24	13	11	12	16	14	43	12	31	59	11	13	114	109	410	
1987 .....	320	42	28	14	9	20	12	45	8	37	66	10	22	115	121	441	
1988 .....	338	38	21	17	18	20	10	75	21	54	45	2	36	116	113	451	
1989 .....	331	42	27	15	11	13	17	45	6	39	56	16	35	131	110	441	
1990 .....	356	49	23	26	8	21	11	59	14	45	52	11	34	140	114	470	
1991 .....	340	59	30	29	6	11	22	59	16	43	57	14	41	115	119	459	

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients: 1981-91--continued

Citizenship status, sex, race/ethnicity, and year	Major field															Total all fields
	Physical sciences			Earth/ atmos/ ocean	Math	Comp/ info sci	Agric & biol sci		Soc sci	Psych	Sub- total	Engineering(1)			Non- S&E(2)	
	Total S&E	Sub- total	Phys& astr				Chem- istry	Sub- total				Agric sci	biol sci	Chem		
	NON-U.S. CITIZENS, PERMANENT VISAS (con't.)															
MALE																
Unknown																
1981	13	2	2	-	-	1	-	1	1	-	-	2	-	-	3	16
1982	20	3	1	2	-	1	-	-	1	-	-	12	4	4	9	29
1983	16	3	-	3	-	1	-	-	3	-	1	4	1	1	6	22
1984	20	3	1	2	-	2	-	1	2	-	-	9	-	-	5	25
1985	23	3	2	1	-	1	-	1	6	-	-	12	-	3	5	28
1986	43	11	2	9	-	1	-	5	2	-	2	16	2	1	20	63
1987	37	3	2	1	-	1	2	4	7	-	2	13	4	2	16	53
1988	57	8	3	5	3	1	5	6	10	1	2	18	3	5	10	67
1989	31	2	1	1	-	1	1	4	9	-	-	11	4	4	14	45
1990	28	2	2	1	-	1	1	5	8	-	2	9	2	2	11	39
1991	30	3	2	1	-	-	-	4	6	1	1	11	3	2	12	42

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients:  
1981-91--continued

Citizenship status, sex, race/ethnicity, and year	Major field																Total all fields
	Total S&E	Physical sciences			Earth/ atmos/ ocean	Math	Comp/ info sci	Agric & biol sci		Soc sci	Psych	Sub- total	Engineering(1)			Non- S&E(2)	
		Sub- total	Phys& astr	Chem- istry				Sub- total	Agri- sci				Biol sci	Chem	Elec		
NON-U.S. CITIZENS, PERMANENT VISAS (con't.)																	
FEMALE																	
Total																	
1981	172	28	8	20	1	6	4	55	4	51	37	26	15	1	2	-	308
1982	162	20	5	15	4	8	-	50	9	41	42	24	14	2	3	4	313
1983	182	21	6	15	7	10	3	56	5	51	42	35	8	2	1	-	322
1984	164	22	5	17	1	12	2	54	6	48	35	25	13	2	1	1	332
1985	185	23	6	17	4	12	-	52	6	46	47	30	17	2	1	3	325
1986	204	39	6	33	3	4	6	48	7	41	51	33	20	5	4	-	365
1987	258	37	6	31	7	12	4	77	10	67	55	41	25	8	1	1	461
1988	256	40	17	23	4	11	7	90	9	81	52	34	18	7	2	1	458
1989	273	35	12	23	6	8	12	94	8	86	66	26	26	8	5	-	487
1990	285	48	17	31	-	11	10	91	12	79	49	48	28	8	2	1	508
1991	347	42	10	32	9	19	11	108	9	99	82	40	36	8	3	3	618
Native American																	
1981	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1982	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1983	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1984	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1985	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1986	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1988	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1989	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1990	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1991	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asian																	
1981	83	19	4	15	1	4	1	32	2	30	11	4	11	1	2	-	109
1982	71	15	4	11	1	5	-	25	7	18	16	3	6	-	1	2	108
1983	79	12	1	11	4	5	1	36	3	33	13	5	3	-	1	-	120
1984	71	14	3	11	-	9	1	30	3	27	4	6	7	2	1	-	118
1985	75	18	5	13	-	4	-	22	4	18	19	5	7	1	1	-	116
1986	77	21	3	18	-	3	3	17	2	15	18	6	9	3	3	-	111
1987	107	21	3	18	2	7	2	36	4	32	21	7	11	3	1	-	170
1988	105	27	13	14	2	7	5	39	3	36	13	3	9	3	1	-	165
1989	118	23	8	15	2	2	6	45	3	42	20	9	11	2	3	-	176
1990	121	23	7	16	-	4	6	52	4	48	17	6	13	4	2	1	182
1991	181	28	7	21	3	13	8	65	5	60	32	11	21	2	2	-	250

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients: 1981-91--continued

Citizenship status, sex, race/ethnicity, and year	Major field													Total all fields		
	Total S&E	Physical sciences			Earth/ atmos/ ocean	Math	Comp/ info sci	Agric & biol sci		Soc sci	Psych	Engineering(1)			Non- S&E(2)	
		Sub- total	Phys- astr	Chem- istry				Sub- total	Agri sci			Chem	Elec			Mech
NON-U.S. CITIZENS, PERMANENT VISAS (con't.)																
FEMALE																
Black																
1981 .....	2	-	-	-	-	-	-	-	-	2	-	-	-	-	15	
1982 .....	4	-	-	-	-	-	-	2	-	1	1	-	-	-	11	
1983 .....	1	-	-	-	-	-	-	1	-	5	2	-	-	-	9	
1984 .....	9	-	-	-	-	-	-	2	1	2	1	1	-	-	12	
1985 .....	7	2	-	2	-	-	-	1	1	4	1	-	-	-	14	
1986 .....	8	-	-	-	-	-	-	3	-	4	1	-	-	-	12	
1987 .....	8	-	-	-	-	-	-	3	-	4	1	-	-	-	20	
1988 .....	12	1	-	1	-	-	-	6	1	2	3	-	-	-	21	
1989 .....	3	-	-	-	-	1	-	1	-	1	-	-	-	-	13	
1990 .....	9	1	-	1	-	-	-	1	-	3	3	1	-	-	13	
1991 .....	14	1	-	1	-	-	-	6	-	5	2	-	-	-	21	
Hispanic																
1981 .....	9	-	-	-	-	-	-	2	-	4	3	-	-	-	6	
1982 .....	9	1	1	-	-	-	-	2	1	3	1	2	1	-	18	
1983 .....	17	2	-	2	-	-	-	3	1	4	8	1	-	-	27	
1984 .....	9	2	-	2	-	-	-	2	2	1	2	2	-	-	24	
1985 .....	15	1	-	1	1	3	-	3	1	5	2	-	-	-	15	
1986 .....	16	1	1	1	-	-	-	7	3	4	4	-	-	-	23	
1987 .....	15	2	1	2	1	-	-	5	4	4	2	-	-	-	8	
1988 .....	20	3	1	2	1	-	-	6	1	3	2	2	-	-	20	
1989 .....	22	3	1	2	1	-	-	6	-	9	3	2	-	-	26	
1990 .....	24	4	-	4	-	1	-	8	3	7	3	2	-	-	14	
1991 .....	15	1	-	1	1	1	-	5	2	4	4	3	1	-	21	
White																
1981 .....	77	9	4	5	-	2	3	20	1	20	19	4	-	-	82	
1982 .....	72	4	-	4	3	5	-	20	1	21	17	5	1	2	82	
1983 .....	83	7	5	2	3	5	2	15	-	25	22	4	2	-	164	
1984 .....	74	6	2	4	1	3	1	20	2	24	15	4	-	1	90	
1985 .....	86	2	1	1	3	5	-	26	1	21	20	9	1	3	167	
1986 .....	97	17	2	15	3	1	3	19	2	24	19	11	2	1	186	
1987 .....	118	12	2	10	4	4	2	30	5	25	29	12	3	-	89	
1988 .....	112	8	3	5	2	5	2	38	4	34	25	8	4	1	95	
1989 .....	119	9	3	6	3	5	6	37	4	33	14	12	3	2	111	
1990 .....	118	17	9	8	-	5	3	26	5	33	33	10	3	-	223	
1991 .....	131	11	3	8	5	5	3	32	2	37	24	14	6	3	116	
286																

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients:  
1981-91--continued

Citizenship status, sex, race/ethnicity, and year	Major field													Total all fields	
	Total S&E	Physical sciences			Earth/ atmos/ ocean	Math	Comp/ info sci	Agric & biol sci		Soc sci	Psych	Engineering(1)			
		Sub- total	Phys- astr	Chem- istry				Sub- total	Agri sci			Biol sci	Sub- total		Chem
NON-U.S. CITIZEN, S, PERMANENT VISAS (con't.)															
FEMALE															
Unknown															
1981 .....	1	-	-	-	-	-	-	1	1	-	-	-	-	7	
1982 .....	6	-	-	-	1	-	-	1	1	-	2	1	1	3	
1983 .....	2	1	-	1	-	-	-	1	1	-	-	-	-	4	
1984 .....	1	-	-	-	-	-	-	-	-	1	-	-	-	4	
1985 .....	2	-	-	-	-	-	-	-	-	-	2	-	-	3	
1986 .....	6	-	-	-	-	-	-	2	-	2	3	-	-	6	
1987 .....	10	2	1	1	-	1	-	3	1	2	2	-	-	12	
1988 .....	7	1	-	1	-	-	-	1	1	3	1	-	-	6	
1989 .....	11	-	-	-	-	-	-	5	1	4	5	1	1	3	
1990 .....	13	3	1	2	-	1	1	4	1	4	5	2	-	6	
1991 .....	6	1	-	1	-	-	-	-	-	4	1	-	1	9	
														12	

(1) Subtotal includes doctorate recipients whose engineering fields are not separately shown.  
(2) Non-S&E doctorate recipients include those whose field of specialization is unknown.

SOURCE: National Science Foundation/SRS, Survey of Earned Doctorates



Table 4. Science and engineering (S&E) doctorates awarded, by major field and citizenship status of recipients: 1981-91

Year	Number				Percentage distribution							
	Total(1)	Citiz known	United States	Total	Foreign			United States	Total	Foreign Perm visas	Temp visas	
					Perm visas	Temp visas						
TOTAL, S&E												
1981	17,996	17,399	13,544	3,855	893			100.0	77.8	22.2	5.1	17.0
1982	18,017	17,273	13,292	3,981	854			100.0	77.0	23.0	4.9	18.1
1983	18,393	17,701	13,403	4,298	898			100.0	75.7	24.3	5.1	19.2
1984	18,514	17,777	13,250	4,527	835			100.0	74.5	25.5	4.7	20.8
1985	18,712	17,904	12,947	4,957	929			100.0	72.3	27.7	5.2	22.5
1986	19,251	17,997	12,869	5,128	987			100.0	71.5	28.5	5.5	23.0
1987	18,355	17,706	12,819	5,536	1,086			100.0	69.8	30.2	5.9	24.2
1988	20,739	19,264	13,217	6,047	1,128			100.0	68.6	31.4	5.9	25.5
1989	21,530	19,811	13,312	6,499	1,121			100.0	67.2	32.8	5.7	27.1
1990	22,677	21,731	14,010	7,721	1,186			100.0	64.5	35.5	5.5	30.1
1991	23,748	22,427	13,923	8,504	1,252			100.0	62.1	37.9	5.6	32.3
TOTAL, SCIENCES												
1981	15,468	14,986	12,374	2,612	592			100.0	82.6	17.4	4.0	13.5
1982	15,371	14,778	12,123	2,655	558			100.0	82.0	18.0	3.8	14.2
1983	15,612	15,049	12,240	2,809	579			100.0	81.3	18.7	3.8	14.8
1984	15,601	14,995	12,011	2,984	561			100.0	80.1	19.9	3.7	16.2
1985	15,546	14,891	11,668	3,223	614			100.0	78.4	21.6	4.1	17.5
1986	15,875	14,899	11,486	3,413	644			100.0	77.1	22.9	4.3	18.6
1987	15,994	14,910	11,261	3,649	731			100.0	75.5	24.5	4.9	19.6
1988	16,551	15,396	11,436	3,960	762			100.0	74.3	25.7	4.9	20.8
1989	16,986	15,641	11,448	4,193	756			100.0	73.2	26.8	4.8	22.0
1990	17,784	17,118	12,057	5,061	799			100.0	70.4	29.6	4.7	24.9
1991	18,536	17,596	11,946	5,650	871			100.0	67.9	32.1	4.9	27.2
PHYSICAL SCIENCES												
1981	2,627	2,545	1,956	589	147			100.0	76.9	23.1	5.8	17.4
1982	2,694	2,616	1,991	625	119			100.0	76.1	23.9	4.5	19.3
1983	2,802	2,723	2,064	659	120			100.0	75.8	24.2	4.4	19.8
1984	2,845	2,754	2,071	683	119			100.0	75.2	24.8	4.3	20.5
1985	2,916	2,798	2,043	755	135			100.0	73.0	27.0	4.8	22.2
1986	3,090	2,905	2,014	891	133			100.0	69.3	30.7	4.6	26.1
1987	3,212	3,025	2,080	945	147			100.0	68.8	31.2	4.9	26.4
1988	3,317	3,101	2,100	1,001	136			100.0	67.7	32.3	4.4	27.9
1989	3,244	3,007	1,973	1,034	146			100.0	65.6	34.4	4.9	29.5
1990	3,492	3,381	2,149	1,232	167			100.0	63.6	36.4	4.9	31.5
1991	3,602	3,431	2,048	1,383	178			100.0	59.7	40.3	5.2	35.1

See footnotes at end of table.



Table 4. Science and engineering (S&E) doctorates awarded, by major field and citizenship status of recipients: 1981-91--continued

Year	Number				Percentage distribution				
	Total(1)	Citiz known	United States	Foreign		Citiz known	United States	Foreign	
				Total	Perm visas			Total	Perm visas
MATHEMATICS									
1981	728	711	482	229	100.0	67.8	32.2	6.0	26.2
1982	691	691	458	233	100.0	66.3	33.7	5.9	27.8
1983	701	666	411	255	100.0	61.7	38.3	6.9	31.4
1984	698	675	407	268	100.0	60.3	39.7	5.3	34.4
1985	688	656	376	280	100.0	57.3	42.7	6.4	36.3
1986	729	674	366	308	100.0	54.3	45.7	5.3	40.4
1987	740	698	345	353	100.0	49.4	50.6	7.3	43.3
1988	749	691	342	349	100.0	49.5	50.5	6.4	44.1
1989	859	774	393	381	100.0	50.8	49.2	4.5	44.7
1990	892	846	375	471	100.0	44.3	55.7	5.6	50.1
1991	1,040	974	439	535	100.0	45.1	54.9	5.6	49.3
COMPUTER/INFO SCIENCES									
1981	232	228	168	60	100.0	73.7	26.3	8.8	17.5
1982	220	214	143	71	100.0	66.8	33.2	5.6	27.6
1983	286	279	180	99	100.0	64.5	35.5	9.7	25.8
1984	295	284	178	106	100.0	62.7	37.3	6.0	31.3
1985	310	302	189	113	100.0	62.6	37.4	7.9	29.5
1986	399	372	202	170	100.0	54.3	45.7	12.6	33.1
1987	450	418	243	175	100.0	58.1	41.9	7.7	34.2
1988	515	502	284	218	100.0	56.6	43.4	8.4	35.1
1989	612	574	338	236	100.0	58.9	41.1	10.1	31.0
1990	705	674	348	326	100.0	51.6	48.4	8.2	40.2
1991	797	779	379	400	100.0	48.7	51.3	8.0	43.4
AGRIC & BIOL SCIENCES									
1981	4,786	4,663	3,891	772	100.0	83.4	16.6	3.4	13.1
1982	4,844	4,707	3,964	743	100.0	84.2	15.8	3.0	12.8
1983	4,756	4,638	3,859	779	100.0	83.2	16.8	3.2	13.6
1984	4,877	4,734	3,910	824	100.0	82.6	17.4	3.1	14.3
1985	4,904	4,761	3,831	930	100.0	80.5	19.5	3.2	16.4
1986	4,805	4,579	3,703	876	100.0	80.9	19.1	3.6	15.5
1987	4,815	4,554	3,565	989	100.0	78.3	21.7	4.6	17.1
1988	5,127	4,835	3,670	1,165	100.0	75.9	24.1	5.4	18.7
1989	5,203	4,915	3,724	964	100.0	75.8	24.2	4.6	19.6
1990	5,507	5,361	3,822	1,539	100.0	71.3	28.7	4.6	24.1
1991	5,714	5,513	3,799	1,714	100.0	68.9	31.1	4.8	26.3

See footnotes at end of table.

Table 4. Science and engineering (S&E) doctorates awarded, by major field and citizenship status of recipients: 1981-91--continued

Year	Number				Percentage distribution						
	Total(1)	Citiz known	United States	Total	Foreign			United States	Total	Foreign	
					Perm visas	Temp visas	Citiz known			Perm visas	Temp visas
AGRIC & BIOL SCIENCES (con't.)											
Agricultural sciences											
1981	982	954	594	360	35	100.0	62.3	37.7	3.7	34.1	
1982	951	930	647	283	23	100.0	69.6	30.4	2.5	28.0	
1983	1,015	992	649	343	36	100.0	65.4	34.6	3.6	30.9	
1984	997	974	625	349	35	100.0	64.2	35.8	3.6	32.2	
1985	1,111	1,081	683	398	43	100.0	63.2	36.8	4.0	32.8	
1986	998	947	579	368	48	100.0	61.1	38.9	5.1	33.8	
1987	976	921	584	337	48	100.0	63.4	36.6	5.2	31.4	
1988	1,015	955	539	416	71	100.0	56.4	43.6	7.4	36.1	
1989	1,088	1,008	607	401	45	100.0	60.2	39.8	4.5	35.3	
1990	1,176	1,126	630	496	57	100.0	56.0	44.0	5.1	39.0	
1991	1,072	1,031	551	480	56	100.0	53.4	46.6	5.4	41.1	
Biological sciences											
1981	3,804	3,709	3,297	412	124	100.0	88.9	11.1	3.3	7.8	
1982	3,893	3,777	3,317	460	117	100.0	87.8	12.2	3.1	9.1	
1983	3,741	3,646	3,210	436	114	100.0	88.0	12.0	3.1	8.8	
1984	3,880	3,760	3,285	475	114	100.0	87.4	12.6	3.0	9.6	
1985	3,793	3,680	3,148	532	108	100.0	85.5	14.5	2.9	11.5	
1986	3,807	3,632	3,124	508	117	100.0	86.0	14.0	3.2	10.8	
1987	3,839	3,633	2,981	652	160	100.0	82.1	17.9	4.4	13.5	
1988	4,112	3,880	3,131	749	192	100.0	80.7	19.3	4.9	14.4	
1989	4,115	3,907	3,117	790	182	100.0	79.8	20.2	4.7	15.6	
1990	4,331	4,235	3,192	1,043	189	100.0	75.4	24.6	4.5	20.2	
1991	4,642	4,482	3,248	1,234	207	100.0	72.5	27.5	4.6	22.9	
SOCIAL SCIENCES											
1981	3,154	3,028	2,294	734	160	100.0	75.8	24.2	5.3	19.0	
1982	3,077	2,924	2,163	761	170	100.0	74.0	26.0	5.8	20.2	
1983	3,083	2,937	2,199	738	142	100.0	74.9	25.1	4.8	20.3	
1984	3,015	2,869	2,036	833	164	100.0	71.0	29.0	5.7	23.3	
1985	2,994	2,836	1,982	854	171	100.0	69.9	30.1	6.0	24.1	
1986	3,139	2,905	2,013	892	174	100.0	69.3	30.7	6.0	24.7	
1987	2,980	2,749	1,856	893	209	100.0	67.5	32.5	7.6	24.9	
1988	3,051	2,776	1,862	914	185	100.0	67.1	32.9	6.7	26.3	
1989	3,125	2,844	1,807	1,037	206	100.0	63.5	36.5	7.2	29.2	
1990	3,150	3,024	1,919	1,105	188	100.0	63.5	36.5	6.2	30.3	
1991	3,306	3,124	1,901	1,223	227	100.0	60.9	39.1	7.3	31.9	

See footnotes at end of table.

Table 4. Science and engineering (S&E) doctorates awarded, by major field and citizenship status of recipients: 1981-91--continued

Year	Number					Percentage distribution				
	Total(1)	Citiz known	United States	Foreign		Citiz known	United States	Total	Foreign	
				Total	Penn visas				Temp visas	Penn visas
PSYCHOLOGY										
1981	3,358	3,238	3,111	127	47	100.0	96.1	3.9	1.5	2.5
1982	3,159	2,988	2,876	112	47	100.0	96.3	3.7	1.6	2.2
1983	3,347	3,187	3,044	143	64	100.0	95.5	4.5	2.0	2.5
1984	3,257	3,074	2,935	139	51	100.0	95.5	4.5	1.7	2.9
1985	3,117	2,945	2,805	140	59	100.0	95.2	4.8	2.0	2.8
1986	3,124	2,912	2,766	146	65	100.0	95.0	5.0	2.2	2.8
1987	3,169	2,891	2,747	144	59	100.0	95.0	5.0	2.0	2.9
1988	3,064	2,812	2,667	145	61	100.0	94.8	5.2	2.2	3.0
1989	3,203	2,844	2,684	160	54	100.0	94.4	5.6	1.9	3.7
1990	3,269	3,099	2,909	190	73	100.0	93.9	6.1	2.4	3.8
1991	3,240	2,977	2,796	181	60	100.0	93.9	6.1	2.0	4.1
TOTAL, ENGINEERING(2)										
1981	2,528	2,413	1,170	1,243	301	100.0	48.5	51.5	12.5	39.0
1982	2,646	2,495	1,169	1,326	296	100.0	46.9	53.1	11.9	41.3
1983	2,781	2,652	1,163	1,489	319	100.0	43.9	56.1	12.0	44.1
1984	2,913	2,782	1,239	1,543	274	100.0	44.5	55.5	9.8	45.6
1985	3,166	3,013	1,279	1,734	315	100.0	42.4	57.6	10.5	47.1
1986	3,376	3,098	1,383	1,715	343	100.0	44.6	55.4	11.1	44.3
1987	3,712	3,445	1,558	1,887	355	100.0	45.2	54.8	10.3	44.5
1988	4,188	3,868	1,781	2,087	366	100.0	46.0	54.0	9.5	44.5
1989	4,544	4,170	1,864	2,306	365	100.0	44.7	55.3	8.8	46.5
1990	4,893	4,613	1,953	2,660	387	100.0	42.3	57.7	8.4	49.3
1991	5,212	4,831	1,977	2,854	381	100.0	40.9	59.1	7.9	51.2
Chemical engineering										
1981	296	283	128	155	43	100.0	45.2	54.8	15.2	39.6
1982	306	287	136	151	37	100.0	47.4	52.6	12.9	39.7
1983	349	338	162	176	38	100.0	47.9	52.1	11.2	40.8
1984	361	345	167	178	32	100.0	48.4	51.6	9.3	42.3
1985	440	429	218	211	39	100.0	50.8	49.2	9.1	40.1
1986	476	445	219	226	51	100.0	49.2	50.8	11.5	39.3
1987	527	510	280	230	48	100.0	54.9	45.1	9.4	35.7
1988	624	587	335	252	44	100.0	57.1	42.9	7.5	35.4
1989	625	597	352	245	55	100.0	59.0	41.0	9.2	31.8
1990	561	547	307	240	42	100.0	56.1	43.9	7.7	36.2
1991	620	598	316	282	44	100.0	52.8	47.2	7.4	39.8

See footnotes at end of table.

Table 4. Science and engineering (S&E) doctorates awarded, by major field and citizenship status of recipients: 1981-91--continued

Year	Total(1)	Number			Percentage distribution			
		Citiz known	United States	Total	Foreign			
					Perm visas	Temp visas	Total	
TOTAL ENGINEERING (con't.)								
Civil engineering								
1981	287	274	105	169	34	38.3	61.7	49.3
1982	308	295	110	185	27	37.3	62.7	53.6
1983	354	341	124	217	30	36.4	63.6	54.8
1984	351	331	124	207	40	37.5	62.5	50.5
1985	358	344	114	230	38	33.1	66.9	55.8
1986	387	356	122	234	45	34.3	65.7	53.1
1987	441	402	146	256	36	36.3	63.7	54.7
1988	489	462	168	294	44	36.4	63.6	54.1
1989	472	466	166	306	55	35.2	64.8	53.2
1990	505	477	156	321	59	32.7	67.3	54.9
1991	509	477	139	338	35	29.1	70.9	63.5
Electrical engineering								
1981	478	453	246	207	58	54.3	45.7	32.9
1982	544	510	241	269	62	47.3	52.7	40.6
1983	517	488	218	270	69	44.7	55.3	41.2
1984	593	562	255	307	59	45.4	54.6	44.1
1985	631	586	247	339	65	42.2	57.8	46.8
1986	706	636	291	345	70	45.8	54.2	43.2
1987	691	615	291	324	60	47.3	52.7	42.9
1988	886	803	359	444	90	44.7	55.3	44.1
1989	995	901	394	507	84	43.7	56.3	46.9
1990	1,110	1,044	438	606	89	42.0	58.0	49.5
1991	1,206	1,132	465	667	113	41.1	58.9	48.9
Materials science								
1981	113	108	55	53	18	50.9	49.1	32.4
1982	147	130	63	67	13	48.5	51.5	41.5
1983	157	143	69	74	15	48.3	51.7	41.3
1984	168	167	76	91	17	45.5	54.5	44.3
1985	188	181	89	92	13	49.2	50.8	43.6
1986	187	176	82	94	19	46.6	53.4	42.6
1987	238	226	108	118	22	47.8	52.2	42.5
1988	252	237	119	118	19	50.2	49.8	41.8
1989	257	234	119	115	10	50.9	49.1	44.9
1990	307	292	126	166	16	43.2	56.8	51.4
1991	362	341	152	189	25	44.6	55.4	48.1

See footnotes at end of table.

Table 4. Science and engineering (S&amp;E) doctorates awarded, by major field and citizenship status of recipients: 1981-91--continued

Year	Number				Percentage distribution			
	Total(1)	Citiz known	United States	Total	Foreign			
					Temp visas	Perm visas	Total	
TOTAL ENGINEERING (con't.)								
Mechanical engineering								
1981	360	346	158	188	100.0	45.7	54.3	12.7
1982	437	423	198	225	100.0	46.8	53.2	15.4
1983	379	365	145	220	100.0	39.7	60.3	12.9
1984	427	407	163	244	100.0	40.0	60.0	9.6
1985	513	490	193	297	100.0	39.4	60.6	11.8
1986	536	498	209	289	100.0	42.0	58.0	11.6
1987	611	657	241	370	100.0	39.4	60.6	11.0
1988	715	660	256	404	100.0	38.8	61.2	10.8
1989	760	683	259	424	100.0	37.9	62.1	9.7
1990	883	831	299	532	100.0	36.0	64.0	8.2
1991	874	795	279	516	100.0	35.1	64.9	7.4
TOTAL, NON-S&E(3)								
1981	13,361	12,883	11,517	1,366	100.0	89.4	10.6	3.0
1982	13,094	12,550	11,099	1,451	100.0	88.4	11.6	3.0
1983	12,889	12,432	10,956	1,476	100.0	88.1	11.9	3.0
1984	12,823	12,306	10,777	1,529	100.0	87.6	12.4	3.2
1985	12,585	12,018	10,423	1,595	100.0	86.7	13.3	3.3
1986	12,644	11,792	10,212	1,580	100.0	86.6	13.4	3.8
1987	12,657	11,816	10,164	1,652	100.0	86.0	14.0	4.2
1988	12,750	11,841	10,071	1,770	100.0	85.1	14.9	4.2
1989	12,788	11,862	10,088	1,774	100.0	85.0	15.0	4.3
1990	13,380	12,924	10,876	2,048	100.0	84.2	15.8	3.9
1991	13,703	12,960	10,798	2,162	100.0	83.3	16.7	4.3
TOTAL, ALL FIELDS								
1981	31,357	30,282	25,061	5,221	100.0	82.8	17.2	4.2
1982	31,111	29,823	24,391	5,432	100.0	81.8	18.2	4.1
1983	31,282	30,133	24,359	5,774	100.0	80.8	19.2	4.2
1984	31,337	30,083	24,027	6,056	100.0	79.9	20.1	4.1
1985	31,297	29,922	23,370	6,552	100.0	78.1	21.9	4.4
1986	31,895	29,789	23,081	6,708	100.0	77.5	22.5	4.8
1987	32,363	30,171	22,983	7,188	100.0	76.2	23.8	5.2
1988	33,489	31,105	23,288	7,817	100.0	74.9	25.1	5.2
1989	34,318	31,673	23,400	8,273	100.0	73.9	26.1	5.1
1990	36,057	34,655	24,884	9,769	100.0	71.8	28.2	4.9
1991	37,451	35,387	24,721	10,666	100.0	69.9	30.1	5.1

(1) Total includes doctorate recipients of unknown citizenship.

(2) Subtotal includes doctorate recipients whose engineering fields are not separately shown.

(3) Non-S&amp;E doctorate recipients include those whose field of specialization is unknown.

SOURCE: National Science Foundation/SRS, Survey of Earned Doctorates

Table 5. Non-U.S. citizens awarded science and engineering doctorates, by country of citizenship and visa type: 1981-91

Country of citizenship	Year of doctorate										
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<b>TOTAL, NON-U.S. CITIZENS</b>											
<b>SCIENCES</b>											
Total, foreign citizenship.....	2,612	2,655	2,809	2,984	3,223	3,413	3,649	3,960	4,193	5,061	5,650
Canada.....	141	130	156	151	130	159	152	175	182	211	225
Mexico & Central America.....	73	72	92	83	93	97	97	91	121	120	143
Mexico.....	54	57	67	57	77	77	65	65	92	78	105
Caribbean.....	23	17	13	27	25	23	17	26	24	29	48
South America.....	218	175	193	214	201	237	232	226	224	255	291
Argentina.....	21	19	26	31	21	30	19	32	37	54	48
Brazil.....	99	64	75	81	68	79	74	69	70	67	82
Chile.....	24	21	24	29	35	36	35	36	38	39	44
Colombia.....	16	23	20	21	18	20	20	37	22	32	37
Europe.....	302	304	334	357	380	411	471	518	511	591	744
Belgium.....	15	8	8	11	10	16	10	15	10	19	34
England.....	84	74	77	88	97	64	85	104	82	85	115
France.....	17	28	19	31	17	21	32	31	33	37	46
Germany.....	27	30	40	37	41	52	67	67	85	107	107
Greece.....	36	37	34	43	38	54	62	60	67	68	96
Italy.....	15	18	23	25	38	40	36	56	41	49	69
East Asia.....	524	645	710	766	887	978	1,165	1,348	1,567	2,328	2,755
Taiwan.....	226	303	327	342	356	356	389	386	427	535	509
China, Peoples Republic of.....	-	3	8	33	89	143	206	345	454	728	1,181
China, unspecified.....	-	1	-	2	3	-	6	4	6	104	104
Hong Kong.....	71	60	68	57	66	46	65	48	55	64	87
Japan.....	46	57	72	64	72	80	68	79	86	130	92
Korea.....	85	109	132	151	190	223	309	363	442	611	655
Thailand.....	60	67	61	72	71	82	75	72	60	90	70
West Asia.....	554	603	650	716	674	736	745	693	728	901	849
India.....	203	197	205	243	246	265	299	265	285	392	381
Iran.....	120	148	140	168	117	113	94	91	88	118	97
Iraq.....	23	22	36	20	35	23	33	28	16	13	13
Israel.....	61	57	64	56	44	55	47	38	49	55	59
Lebanon.....	11	13	11	13	15	17	16	21	26	10	16
Turkey.....	19	25	32	31	28	35	43	39	26	47	33
Pakistan.....	18	30	25	27	28	36	42	32	46	50	58
Australasia.....	118	125	136	128	119	127	111	131	140	148	160
Australia.....	32	42	42	46	35	28	37	37	39	42	26
Indonesia, Republic of.....	35	27	38	26	27	31	29	31	40	39	45
New Zealand.....	14	13	18	12	15	16	12	13	24	14	19
Philippines.....	37	43	38	42	40	52	31	49	36	52	70
Africa.....	279	293	301	313	364	330	298	311	304	349	324
Egypt.....	38	45	50	45	59	47	58	68	60	77	54
Nigeria.....	98	82	77	64	88	64	73	66	47	59	59
Country unknown.....	380	291	224	229	350	315	371	441	392	129	111



Table 5. Non-U.S. citizens awarded science and engineering doctorates, by country of citizenship and visa type: 1981-91--continued

Country of citizenship	Year of doctorate										
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<b>TEMPORARY VISAS</b>											
<b>SCIENCES</b>											
Total, foreign citizenship.....	2,020	2,097	2,230	2,423	2,609	2,769	2,918	3,198	3,437	4,262	4,779
Canada.....	111	101	116	119	103	113	115	130	136	165	168
Mexico & Central America.....	68	61	76	72	84	82	75	79	99	100	116
Mexico.....	50	52	58	55	70	67	58	55	79	66	85
Caribbean.....	14	10	7	14	10	10	12	12	16	17	30
South America.....	192	160	171	198	178	197	199	189	190	201	242
Argentina.....	18	17	19	29	19	24	16	24	33	45	38
Brazil.....	92	62	71	80	64	76	70	62	62	57	76
Chile.....	18	20	22	26	30	26	30	32	33	32	38
Colombia.....	15	21	18	18	14	16	15	22	17	22	27
Europe.....	227	226	221	269	275	308	353	376	382	444	571
Belgium.....	12	7	8	9	8	12	8	13	7	14	27
England.....	57	49	41	53	57	35	59	64	51	53	67
France.....	12	22	12	26	11	17	24	21	21	28	38
Germany.....	20	19	28	26	23	35	40	46	64	73	82
Greece.....	29	31	24	33	29	43	47	45	51	49	79
Italy.....	13	14	19	22	28	36	30	49	33	44	56
East Asia.....	420	527	574	650	752	851	1,020	1,210	1,408	2,135	2,519
Taiwan.....	162	237	254	275	286	290	315	321	352	457	438
China, Peoples Republic of.....	-	3	8	33	84	138	193	329	428	698	1,117
China, unspecified.....	-	1	-	1	2	-	6	3	5	100	92
Hong Kong.....	61	50	56	44	53	38	55	38	45	57	78
Japan.....	43	48	65	56	65	73	60	71	74	108	77
Korea.....	69	88	104	133	162	196	287	336	412	572	604
Thailand.....	57	63	53	65	69	75	63	67	56	88	63
West Asia.....	479	519	547	599	560	602	582	554	571	707	683
India.....	171	165	165	205	206	224	241	217	226	316	318
Iran.....	103	126	115	127	82	69	55	53	50	55	58
Iraq.....	22	22	34	19	32	21	26	23	15	11	10
Israel.....	51	49	51	42	37	45	31	30	32	48	45
Lebanon.....	8	13	8	12	11	12	11	18	19	5	10
Turkey.....	17	22	27	25	21	25	38	32	20	40	27
Pakistan.....	16	22	21	21	27	31	34	28	44	45	49
Australasia.....	107	112	124	105	104	109	90	108	124	128	132
Australia.....	30	35	34	33	29	18	27	27	31	30	19
Indonesia, Republic of.....	33	27	38	25	26	30	26	29	37	39	39
New Zealand.....	13	10	17	11	14	15	9	9	23	11	15
Philippines.....	31	40	35	35	33	46	27	42	32	47	59
Africa.....	257	267	278	271	307	287	241	247	242	280	249
Egypt.....	37	43	45	39	50	42	51	54	51	70	45
Nigeria.....	89	71	70	52	66	49	52	48	31	35	34
Country unknown.....	145	114	116	126	236	210	231	293	269	85	69

Table 5. Non-U.S. citizens awarded science and engineering doctorates, by country of citizenship and visa type: 1981-91--continued

Country of citizenship	Year of doctorate										
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<b>TEMPORARY VISAS (con't.)</b>											
<b>ENGINEERING</b>											
Total, foreign citizenship.....	942	1,030	1,170	1,269	1,419	1,372	1,532	1,721	1,941	2,273	2,473
Canada.....	13	16	18	19	20	16	26	20	29	31	37
Mexico & Central America.....	24	14	32	16	24	22	23	26	30	29	23
Mexico.....	21	11	27	13	21	19	18	22	25	21	20
Caribbean.....	-	1	2	3	4	5	5	1	5	3	3
South America.....	69	57	65	56	50	55	68	57	66	72	69
Argentina.....	5	4	7	10	11	10	8	6	6	10	7
Brazil.....	36	27	23	26	15	15	33	25	29	29	30
Chile.....	10	5	10	2	5	7	8	8	8	11	8
Colombia.....	3	3	2	9	4	4	7	4	3	7	10
Europe.....	78	93	93	87	85	109	120	143	168	174	153
Belgium.....	5	7	5	5	8	2	6	4	5	11	8
England.....	10	11	6	7	3	9	5	6	9	9	8
France.....	7	12	10	14	10	11	13	20	16	21	15
Germany.....	6	6	3	2	6	5	5	14	14	11	7
Greece.....	19	18	25	29	18	36	46	52	61	52	51
Italy.....	-	4	6	9	6	7	6	5	12	14	9
East Asia.....	280	333	384	483	546	566	688	777	883	1,137	1,378
Taiwan.....	161	201	209	263	299	273	321	329	360	406	486
China, Peoples Republic of.....	-	-	5	25	47	53	77	123	148	271	392
China, unspecified.....	-	1	-	-	-	2	1	1	6	41	34
Hong Kong.....	27	24	24	20	24	21	13	28	33	25	21
Japan.....	28	29	27	36	24	24	13	22	18	16	23
Korea.....	38	48	87	95	114	156	224	235	286	329	376
Thailand.....	20	22	26	32	21	23	19	24	16	21	17
West Asia.....	313	354	388	382	423	377	379	427	456	588	611
India.....	141	135	143	165	178	175	175	219	217	272	296
Iran.....	63	86	96	87	79	67	48	42	55	78	73
Iraq.....	4	3	5	6	6	4	9	5	8	13	8
Israel.....	28	22	36	20	20	18	15	17	17	16	22
Lebanon.....	6	6	11	10	8	8	17	11	18	22	33
Turkey.....	27	36	31	32	51	38	36	34	47	48	56
Pakistan.....	7	10	9	7	13	19	13	19	12	24	30
Australasia.....	8	19	22	26	27	18	18	18	23	20	35
Australia.....	3	2	8	4	3	4	2	1	2	3	5
Indonesia, Republic of.....	3	7	8	10	15	9	11	8	10	11	14
New Zealand.....	-	6	-	3	4	1	1	2	3	1	2
Philippines.....	2	4	6	9	5	4	4	7	8	5	14
Africa.....	99	84	107	128	116	99	95	121	123	166	124
Egypt.....	37	30	37	39	42	46	38	43	45	75	51
Nigeria.....	30	13	24	27	21	10	11	14	8	18	9
Country unknown.....	58	59	59	67	124	105	110	131	158	53	40

SOURCE: National Science Foundation/SRS, Survey of Earned Doctorates

Table 6. Institutions conferring science and engineering (S&amp;E) doctorates, by major field: 1991

Institution(1)	Major field															Total S&E	
	Physical sciences					Earth/ atmos/ ocean		Comp/ info		Agric & biol sci		Engineering(2)					Non- all S&E(3) flds
	Sub- total	Phys- astr	Chem- istry	Earth/ atmos/ ocean	Math	Sub- total	Agri- sci	Biol sci	Soc sci	Psych	Sub- total	Chem	Elec	Mech			
California, Univ of Berkeley	569	39	55	14	54	17	107	13	94	112	14	157	18	39	37	209	778
Illinois, U, Urbana-Champaign	527	8	47	51	17	33	132	49	83	58	29	149	12	56	18	211	738
Wisconsin, Univ of Madison	481	67	34	33	16	26	18	154	106	80	26	94	15	18	19	225	706
Minnesota, Univ of Minneapolis	473	52	16	36	9	29	133	58	75	87	58	86	19	19	231	704	
Massachusetts Inst Technology	466	86	47	39	28	29	7	38	38	50	3	225	30	24	35	31	497
Stanford University/CA	443	60	34	26	28	13	27	48	2	46	18	199	10	61	47	113	556
Michigan, University of	441	62	25	37	13	17	14	76	8	68	37	160	11	24	20	218	659
Texas, University of Austin	423	77	42	35	17	10	28	50	-	58	40	143	29	21	8	287	710
Cornell University/NY	415	61	41	20	6	15	11	119	41	78	82	109	5	25	22	85	500
California, Univ of Los Angeles	391	63	37	26	20	24	23	76	-	76	82	71	4	20	16	181	572
Ohio State University	384	56	17	39	4	19	23	104	19	85	64	82	4	20	15	255	639
Pennsylvania State University	346	59	21	38	28	14	12	53	15	38	44	31	105	12	18	17	473
Purdue University/IN	341	51	9	42	7	15	13	74	18	56	38	15	128	20	42	16	430
Texas A&M University	340	45	6	39	22	5	5	118	65	53	25	101	14	19	18	105	445
Washington, University of	319	56	18	38	31	11	14	84	17	67	34	16	73	20	4	140	459
California, University of-Davis	317	44	8	36	9	8	6	182	21	161	20	2	46	3	9	30	347
Harvard University/MA	294	56	32	24	7	19	9	88	-	88	100	13	2	-	-	240	534
Maryland, University of	290	54	34	20	7	24	15	55	13	42	42	36	57	6	26	7	453
Florida, University of	288	43	9	34	4	5	6	83	34	49	38	27	82	9	27	12	368
Arizona, University of	286	64	35	29	27	10	7	84	27	57	29	13	52	7	11	98	384
Pennsylvania, University of	277	34	18	16	3	9	13	56	-	56	96	14	52	8	4	6	449
Michigan State University	252	41	14	27	2	10	3	93	39	54	45	30	28	1	9	9	390
Columbia University/NY	238	35	22	13	14	12	8	34	34	47	32	56	2	15	13	160	398
Iowa State University	237	69	16	53	6	14	7	64	28	36	25	8	44	3	21	60	297
Northwestern University/IL	230	20	7	13	6	10	8	42	-	42	27	27	90	6	13	16	316
CUNY-Grad Sch & Univ Ctr	229	43	15	28	1	11	9	37	-	37	51	52	25	7	11	3	326
VA Poly Inst & State Univ	229	17	4	13	9	12	3	53	30	23	21	104	4	13	31	107	336
NC State University-Raleigh	227	19	6	13	3	12	1	76	43	33	14	7	95	7	17	16	298
Colorado, Univ of-Boulder	223	49	26	23	18	16	10	27	-	27	29	14	60	8	16	6	75
Southern Calif, University of	216	26	5	21	1	1	12	25	-	25	33	40	78	5	34	2	422
Massachusetts, Univ of-Amherst	212	34	11	23	6	11	15	40	13	27	41	19	46	13	7	6	188
Yale University/CT	202	39	20	19	4	8	6	66	5	61	52	13	14	3	6	4	142
Rutgers University/NJ	201	17	4	13	8	12	3	66	19	47	27	10	58	9	10	9	304
Chicago, University of/IL	200	45	22	23	7	14	2	41	-	41	75	16	-	-	-	-	317
Johns Hopkins University/MD	199	24	15	9	6	10	2	75	-	75	35	7	40	5	8	3	285
NC Carolina, U of-Chapel Hill	189	46	10	36	8	11	7	61	-	61	26	26	4	-	-	-	336
California, Univ of-San Diego	189	32	13	19	24	18	5	36	-	36	32	16	26	1	11	-	210
SUNY at Buffalo	184	30	5	25	1	8	4	38	-	38	25	29	49	10	8	11	272
SUNY at Stony Brook	182	45	21	24	8	18	2	52	-	52	25	16	16	-	2	7	64
Princeton University/NJ	179	33	23	10	15	10	11	19	-	19	42	7	42	12	14	4	244
Colorado State University	173	23	1	22	8	3	-	67	31	36	15	15	42	1	6	5	198
New York University	170	19	9	10	1	20	17	31	-	31	37	44	1	-	-	-	257
Virginia, University of	167	24	9	15	4	19	2	30	-	30	26	27	35	8	7	2	427
Georgia, University of	165	15	3	12	3	3	-	89	30	59	26	29	-	-	-	-	292
Connecticut, University of	160	24	8	16	1	12	5	43	-	43	34	19	22	3	3	1	332
Pittsburgh, University of	159	30	4	26	2	4	6	30	-	30	32	26	30	9	4	4	228
Iowa, University of	156	27	9	18	4	12	6	41	-	41	14	7	45	2	7	16	341
California Inst of Technology	154	49	32	17	14	9	6	22	-	22	4	-	50	11	11	6	359
Duke University/NC	153	21	7	14	4	11	8	45	2	43	26	8	30	-	11	11	154
Georgia Inst of Technology	149	19	11	8	5	1	12	6	-	6	-	6	100	8	30	17	204

See footnotes at end of table.

Table 6. Institutions conferring science and engineering (S&amp;E) doctorates, by major field: 1991--continued

Institution(1)	Major field																	Total S&E	Total all flds			
	Physical sciences					Earth/ atmos/ ocean		Comp/ info		Agric & biol sci		Soc sci		Psych		Sub- total				Engineering(2)		Non- all S&E(3)
	Sub- total	Phys- astr	Chem- istry	Earth/ atmos/ ocean	Math	Comp/ info	Sub- total	Agri sci	biol sci	Sci	Sci	Sci	Sci	Sci	Sci	Sci	Sci			Sci	Sci	
Indiana Univ-Bloomington	145	40	16	24	6	3	2	34	-	34	46	14	-	-	3	38	-	17	215	360		
Illinois, Univ of Chicago	145	22	9	13	2	5	6	41	-	41	20	11	-	-	8	51	-	12	55	200		
Cincinnati, University of/OH	144	34	6	28	8	1	4	27	-	27	9	16	-	-	8	46	-	8	82	226		
Utah, University of	144	28	5	23	8	6	7	19	-	19	18	12	-	-	3	32	-	4	55	199		
Boston University/MA	143	20	15	5	2	7	3	51	-	51	29	24	-	-	1	70	-	3	112	255		
Carnegie Mellon Univ/PA	143	16	10	6	-	9	22	8	-	8	12	6	-	-	9	38	-	21	32	175		
Tennessee, Univ of Knoxville	141	20	7	13	2	3	1	35	8	27	19	23	-	-	6	41	-	7	75	216		
Arizona State University	141	27	12	15	8	6	6	11	-	11	22	23	-	-	3	25	-	15	85	226		
Calif, Univ of Santa Barbara	141	30	14	16	11	5	2	21	-	21	31	16	-	-	5	55	-	6	4	186		
Case Western Reserve/OH	136	29	10	19	-	3	4	27	-	27	9	9	-	-	5	20	-	8	38	174		
LA St Univ & A&M College	136	26	7	19	6	6	5	44	22	22	15	14	-	-	7	20	-	2	1	56	192	
Rochester, Univ of/NY	134	38	20	18	3	8	6	30	-	30	17	14	-	-	5	18	-	10	60	194		
Washington State University	132	8	5	3	6	4	2	49	21	28	24	16	-	-	4	23	-	4	40	172		
Oregon State University	132	15	1	14	14	4	3	58	37	21	8	1	-	-	-	29	-	11	37	169		
Rensselaer Poly Inst/NY	125	21	9	12	5	4	6	4	-	4	6	-	-	-	10	79	-	20	18	136		
Missouri, Univ of Columbia	123	12	6	6	3	5	-	39	19	20	19	31	-	-	3	14	-	3	4	89	212	
South Carolina, Univ of	121	23	3	20	21	6	2	31	-	31	13	13	-	-	4	12	-	1	125	246		
Kentucky, University of	120	9	2	7	2	6	-	48	19	29	25	14	-	-	7	16	-	2	3	62	182	
Brown University/RI	117	22	11	11	10	16	11	23	-	23	22	4	-	-	2	9	-	2	2	56	173	
Vanderbilt University/TN	116	14	7	7	-	5	4	32	-	32	8	30	-	-	2	23	-	7	3	39	155	
Washington University/MO	115	19	9	10	6	9	3	35	-	35	14	8	-	-	3	21	-	5	1	23	138	
Kansas, University of	114	15	2	13	2	1	3	32	-	32	12	33	-	-	2	16	-	2	2	108	222	
Syracuse University/NY	112	15	7	8	1	3	6	11	-	11	24	12	-	-	8	40	-	17	1	83	195	
Wayne State University/MI	103	16	-	16	-	5	3	27	-	27	7	29	-	-	2	16	-	3	2	99	202	
Florida State University	101	10	3	7	8	6	7	16	-	16	33	19	-	-	2	22	-	14	-	156	257	
California, Univ of Irvine	101	22	10	12	-	1	16	19	-	19	14	7	-	-	2	22	-	4	2	26	127	
Hawaii, University of	101	6	4	2	8	2	1	35	8	27	39	8	-	-	6	37	-	6	9	42	143	
Delaware, University of	100	21	11	10	8	3	1	8	1	7	15	7	-	-	13	26	-	9	33	133	206	
Oklahoma State University	100	10	3	7	1	-	2	22	10	12	15	24	-	-	6	4	-	4	9	106	232	
Temple University/PA	97	11	8	3	-	9	1	20	-	20	16	40	-	-	-	-	-	-	-	155	232	
Nebraska, Univ of Lincoln	97	5	2	3	2	3	5	47	27	20	11	18	-	-	-	6	-	1	1	118	215	
U S Internatl Univ/CA	94	-	-	-	-	-	7	12	-	-	-	94	-	-	-	38	-	6	61	155	155	
George Washington Univ/DC	88	-	-	-	-	1	7	17	-	-	17	11	-	-	-	17	-	3	4	63	149	
New Mexico, University of	88	19	10	9	4	5	2	26	14	12	6	16	-	-	5	22	-	3	4	38	151	
Auburn University/AL	87	11	4	7	1	6	2	9	-	9	5	24	-	-	6	21	-	4	4	60	125	
Houston, University of/TX	87	19	9	10	4	1	4	2	-	2	8	5	-	-	10	33	-	7	9	18	147	
Rice University/TX	86	17	6	11	5	12	4	2	-	2	7	10	-	-	5	24	-	6	6	61	145	
Oklahoma, University of	84	9	2	7	9	2	5	18	-	18	7	10	-	-	5	17	-	5	6	11	145	
Rhode Island, University of	83	10	2	8	15	3	-	22	5	17	2	14	-	-	1	49	-	6	6	11	94	
Lehigh University/PA	83	14	7	7	1	5	-	5	-	5	2	7	-	-	12	25	-	5	5	18	101	
Notre Dame, University of/IN	83	25	9	16	-	8	-	10	-	10	8	7	-	-	5	13	-	9	5	18	101	
Kansas State University	82	12	5	7	-	6	2	43	27	16	4	2	-	-	1	25	-	1	2	54	136	
Oregon, University of	81	17	7	10	1	3	1	18	6	18	20	21	-	-	-	18	-	5	-	115	196	
Texas Tech University	80	10	4	6	6	3	2	14	-	14	8	24	-	-	1	32	-	-	-	64	144	
Calif, Univ of Riverside	77	23	13	10	1	7	-	33	14	19	6	7	-	-	-	32	-	6	-	13	90	
Illinois Inst Technology	76	5	3	2	7	1	19	3	-	3	-	16	-	-	-	10	-	12	2	5	81	190
Florida, University of/FL	73	7	3	4	-	2	-	21	-	21	5	21	-	-	-	10	-	4	4	39	81	
Miami, University of/OH	71	30	2	28	-	-	-	5	-	5	8	14	-	-	1	14	-	3	3	29	100	
Akron, University of/OH	70	12	1	11	-	-	2	38	-	38	2	16	-	-	-	68	-	-	-	23	68	
VA Commonwealth University																						
Calif Sch Prof Psy-Alhambra																						

See footnotes at end of table.

Table 6. Institutions conferring science and engineering (S&amp;E) doctorates, by major field: 1991--continued

Institution(1)	Physical sciences														Earth/		Comp/		Agric & biol sci				Engineering(2)				Total all flds
	Sub-Phys&Chem-				atmos/		Mat'l	info	sci	Sub-Agri		sci	Sci	Soc	Psych	Sub-total	Chem	Elec	Mech	Non-S&E(3)							
	total	astr	istry	chem-	ocean	sci				total	sci																
West Virginia University	66	3	-	3	1	-	-	23	10	13	6	10	23	3	3	7	49	115									
Missouri, Univ of-Rolla	63	13	6	7	1	3	-	3	3	11	7	6	46	3	6	8	11	63									
Calif, Univ of-Santa Cruz	62	16	8	8	14	3	2	14	3	16	22	4	-	-	-	-	30	73									
Brandeis University/MA	61	11	4	7	-	6	2	16	-	31	5	9	-	-	-	-	51	91									
Emory University/GA	61	14	-	14	-	2	4	7	-	-	-	-	34	4	17	1	20	112									
Polytechnic University/NY	60	15	1	14	-	7	2	25	-	25	10	3	3	3	4	1	7	60									
Calif, Univ of-San Francisco	60	17	-	17	-	2	-	21	-	21	13	5	6	4	1	-	52	66									
Tufts University/MA	59	13	4	9	3	1	-	8	-	8	19	20	11	14	-	3	28	111									
SUNY at Albany	59	6	3	3	3	3	5	3	-	3	20	11	14	-	4	3	28	87									
Wisconsin, Univ of-Milwaukee	59	5	3	2	1	5	-	-	-	-	-	-	-	-	-	-	-	87									
Northeastern University/MA	58	13	6	7	-	6	-	7	-	7	11	3	18	3	6	5	7	65									
Southern Illinois Univ	58	4	2	2	3	3	-	15	2	13	12	17	4	-	-	5	104	162									
Clemson University/SC	58	12	-	12	1	2	-	11	5	6	4	-	28	2	5	3	15	73									
Georgetown University/DC	56	5	1	4	-	-	-	21	-	21	29	56	1	-	-	-	17	73									
Calif Sch Prof Psych-Alameda	56	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	56									
Tulane University of LA	55	5	-	5	-	8	2	16	-	16	7	12	5	2	2	-	36	91									
Arkansas, Univ of-Fayetteville	54	12	8	4	-	-	-	24	11	13	7	10	8	-	2	-	64	118									
North Texas, University of	53	8	2	6	-	3	3	10	1	9	7	21	1	-	-	-	118	171									
Calif Sch Prof Psych-San Diego	53	-	-	-	-	-	-	-	-	-	-	53	53	-	-	-	-	53									
Brigham Young University/UT	52	12	2	10	-	-	-	8	3	5	6	20	6	4	1	-	42	94									
Georgia State University	51	5	4	1	-	-	-	7	-	7	7	32	-	-	-	-	81	132									
Kent State University/OH	50	6	5	1	2	4	-	8	-	8	5	24	1	-	-	-	64	114									
Alabama, Univ of-Birmingham	50	3	3	-	-	-	2	30	-	30	7	11	4	-	-	-	45	95									
Mississippi State University	50	1	-	1	-	-	1	29	22	7	6	3	10	-	5	-	54	104									
Wyoming, University of	50	7	-	7	6	9	1	17	6	11	1	5	5	1	2	1	17	67									
New Mexico State University	50	11	3	8	1	3	3	19	11	8	5	9	7	-	2	-	13	63									
Utah State University	50	-	-	-	1	-	-	28	22	6	5	8	5	2	-	-	10	60									
Drexel University/PA	49	4	-	4	7	1	7	3	-	3	5	-	34	2	12	12	6	55									
Southern Methodist Univ/TX	49	-	-	-	6	2	-	1	-	1	-	49	-	-	14	5	-	49									
Calif Sch Prof Psych-Fresno	49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-									
Howard University/DC	47	7	2	5	-	-	-	8	-	8	17	10	5	-	3	2	20	67									
Texas, Univ of-Arlington	47	8	3	5	-	4	2	1	-	1	3	2	27	-	14	4	21	68									
Stevens Inst Technology/NJ	45	8	4	4	-	2	7	-	-	-	1	3	24	1	2	2	-	45									
Loyola Univ of Chicago/IL	44	4	-	4	-	-	-	12	-	12	4	24	-	24	-	-	53	97									
South Florida, University of	44	4	1	3	2	5	-	10	-	10	-	13	10	2	3	-	35	79									
Southern Mississippi, Univ of	44	14	-	14	-	-	-	2	-	2	8	27	1	-	-	-	63	107									
Texas, University of-Dallas	44	11	8	3	5	3	7	5	-	5	4	4	1	-	-	-	13	57									
SUNY at Binghamton	43	6	-	6	1	2	2	3	-	3	15	10	4	-	-	-	24	67									
St Louis University/MO	42	-	-	-	5	2	-	13	-	13	8	14	-	-	-	-	70	112									
Vermont, University of	41	5	-	5	-	-	-	21	1	20	-	8	7	-	4	1	7	48									
Hofstra University/NY	41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48									
Catholic University of Amer/DC	40	9	4	5	-	-	-	-	-	-	-	41	-	-	-	-	23	64									
Alabama, University of	40	10	3	7	1	2	-	2	-	2	6	16	7	-	2	2	58	98									
Miami University/OH	39	8	3	8	3	-	-	4	-	4	2	9	12	-	1	7	104	144									
Denver, University of/CO	39	2	2	-	-	-	-	13	-	13	18	15	-	-	-	-	27	66									
Dartmouth College/NH	37	9	2	7	3	-	-	1	-	1	18	18	8	-	-	-	42	81									
Boston College/MA	37	12	7	5	-	-	-	16	-	16	11	1	1	-	1	1	-	37									
Mississippi, University of	37	10	1	9	-	1	-	3	-	3	11	11	4	-	-	-	43	80									
New Sch Soc Rsch/NY	36	-	-	-	-	-	-	1	-	1	1	18	-	1	-	1	68	105									
Clarkson University/NY	35	7	2	5	-	1	1	3	-	3	16	20	-	-	-	-	2	35									

See footnotes at end of table.

Table 6. Institutions conferring science and engineering (S&amp;E) doctorates, by major field: 1991--continued

Institution(1)	Major field													Total S&E																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
	Physical sciences			Earth/ atmos/ ocean	Comp/ info sci	Agric & biol sci			Engineering(2)			Total all flds																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
	Sub- total	Physic- astr	Chem- istry			Sub- total	Agri- sci	Biol sci	Sub- total	Chem	Elec		Mech		Non- S&E(3)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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See footnotes at end of table.

Table 6. Institutions conferring science and engineering (S&amp;E) doctorates, by major field: 1991--continued

Institution(1)	Total S&E	Major field																Total all flds	
		Physical sciences				Earth/				Comp/				Agric & biol sci					
		Sub- total	Phys- astr	Chem- istry	atmos/ ocean	Math	Earth/ atmos/ ocean	info	sei	Sub- total	Agri	Sci	Sci	Sub- total	Soc	Sci	Sci		
		Engineering(2)																Non- S&E(3)	
		Sub- total	Chem	Elect	Mech	Sub- total	Psych	Soc	Sci	Sci	Sci	Sci	Sci	Sci	Sci	Sci	Sci		
Health Sci U-Chicago Med/IL	17	-	-	-	-	-	-	-	-	-	5	-	5	-	-	-	-	17	
Med Univ South Carolina	17	3	-	3	-	-	-	-	-	-	14	-	14	-	-	-	-	18	
Saybrook Institute/CA	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17	
Rutgers University-Newark/NJ	16	3	-	3	-	-	-	-	-	-	5	6	5	-	6	-	3	19	
DePaul University/IL	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17	
Wake Forest University/NC	16	-	-	-	-	-	-	-	-	-	16	-	16	-	-	-	-	16	
New Mex Inst Mining & Tech	16	2	1	1	7	-	-	1	-	-	-	-	-	-	-	-	-	16	
Loma Linda University/CA	16	-	-	-	-	-	-	-	-	-	16	-	16	-	-	-	-	21	
Alfred University/NY	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	
Yeshiva University/NY	15	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	24	
Walden University/MN	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61	
Albany Medical College/NY	14	-	-	-	-	-	-	-	-	-	14	-	14	-	-	-	-	14	
Seton Hall University/NJ	14	7	-	7	-	-	-	-	-	-	14	-	14	-	-	-	-	25	
Med Coll Ohio at Toledo	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	
Indiana State University	14	-	-	-	-	-	-	-	-	-	4	-	4	-	-	-	-	12	
Missouri, Univ of-St. Louis	14	4	-	4	-	-	-	-	-	-	-	-	-	-	10	-	-	26	
North Dakota, University of	14	1	-	1	-	-	-	-	-	-	3	-	3	-	10	-	-	28	
Unifrm Svc Univ Hlth/MD	14	-	-	-	-	-	-	-	-	-	12	-	12	-	10	-	-	34	
Tulsa, University of/OK	14	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	14	
Oregon Graduate Institute	14	4	2	2	2	-	-	2	-	-	1	-	1	-	4	-	-	27	
Pacific Grad Psych/CA	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	
Bryn Mawr College/PA	13	3	2	1	1	-	-	-	-	-	-	-	-	-	14	-	-	14	
NC, Univ of-Greensboro	13	-	-	-	-	-	-	-	-	-	3	2	3	-	2	-	-	33	
LA St Univ, S Med-New Orleans	13	-	-	-	-	-	-	-	-	-	13	-	13	-	2	-	-	80	
Portland State University/OR	13	4	1	3	1	-	-	-	-	-	1	-	1	-	5	-	-	18	
New York Medical College	12	-	-	-	-	-	-	-	-	-	12	-	12	-	-	-	-	20	
Medical College of Wisconsin	12	1	1	-	-	-	-	-	-	-	11	-	11	-	-	-	-	12	
South Dakota, University of	12	-	-	-	-	-	-	-	-	-	5	-	5	-	7	-	-	12	
William & Mary, Coll/V A	12	6	6	-	5	-	-	-	-	-	1	-	1	-	-	-	-	33	
Tennessee, Univ-Health Sci Ctr	12	1	-	1	-	-	-	-	-	-	11	-	11	-	-	-	-	38	
New Orleans, University of/LA	12	7	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	12	
Northern Arizona University	12	-	-	-	-	-	-	-	-	-	-	2	-	-	3	-	-	23	
PR, Univ of-Rio Piedras	12	5	-	5	-	-	-	-	-	-	8	4	8	-	4	-	-	59	
LIU-Brooklyn Campus/NY	11	-	-	-	1	-	-	-	-	-	2	1	2	-	10	-	-	23	
Florida Inst Technology	11	-	-	-	-	-	-	-	-	-	1	-	1	-	2	-	-	11	
New Jersey Inst Technology	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	1	16	
Thomas Jefferson University/PA	10	-	-	-	-	-	-	-	-	-	10	-	10	-	-	2	3	10	
Illinois State University-Normal	10	-	-	-	-	1	-	-	-	-	9	-	9	-	-	-	-	39	
Detroit Mercy, Univ/MI	10	1	-	1	-	-	-	-	-	-	1	-	1	-	7	-	-	10	
Wichita State University/AS	10	2	-	2	-	-	-	-	-	-	1	-	1	-	-	2	-	13	
Medical College of Georgia	10	-	-	-	-	-	-	-	-	-	10	-	10	-	-	-	-	12	
Idaho State University	10	-	-	-	-	1	-	-	-	-	6	3	6	-	-	-	-	16	
Oregon Health Sci Univ	10	-	-	-	-	-	-	-	-	-	10	-	10	-	-	-	-	15	
Rand Grad School/CA	10	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	10	
Alaska, University of	10	2	2	-	6	-	-	-	-	-	2	-	2	-	-	-	-	10	
Wesleyan University/CT	9	3	-	3	-	4	-	-	-	-	2	-	2	-	-	-	-	11	
New Jersey Med Sch-Newark	9	-	-	-	-	-	-	-	-	-	9	-	9	-	-	-	-	9	
Duquesne University/PA	9	-	-	-	-	-	-	-	-	-	1	-	1	-	8	-	-	18	
Medical College of Pennsylvania	9	-	-	-	-	-	-	-	-	-	9	-	9	-	-	-	-	9	
Cleveland State University/OH	9	7	-	7	-	-	-	-	-	-	2	-	2	-	-	-	-	11	

See footnotes at end of table.



Table 6. Institutions conferring science and engineering (S&E) doctorates, by major field: 1991--continued

Institution(1)	Major field														Total all Non- S&E(3) flds	
	Physical sciences				Earth/ atmos/ ocean	Comp/ info sci	Agric & biol sci		Soc sci	Psych	Engineering(2)		Sub- total			
	Total S&E	Sub- total	Phys- astr	Chem- istry			Sub- total	Agri- sci			Biol sci	Chem		Elec Mech		
Rush University/IL	9	-	-	-	-	-	9	-	9	-	-	-	8	-	14	23
Central Florida, U/FL	9	3	1	2	-	1	-	-	-	-	6	-	-	1	11	20
Texas Christian University	9	-	-	-	-	-	-	-	-	-	-	-	-	-	8	17
Wright State University/OH	8	-	-	-	-	-	8	-	8	-	-	-	-	-	-	8
Mayo Graduate School/MN	8	-	-	-	-	-	8	-	8	-	-	-	-	-	1	9
Mass, U Med S-Worcester	7	-	-	-	-	-	7	-	7	-	-	-	-	-	2	9
Oakland University/MI	7	2	2	-	-	-	2	-	2	-	-	-	3	-	2	9
South Dakota Sch Mine & Tech	7	-	-	1	-	-	-	-	-	-	-	-	6	-	-	7
South Dakota State University	7	-	-	-	-	-	7	6	1	-	-	-	-	-	-	7
East Carolina Univ Sch Med/NC	7	-	-	-	-	-	7	-	7	-	-	-	-	-	-	7
LSU, Sch Med-Shreveport	7	-	-	-	-	-	7	-	7	-	-	-	-	-	-	7
Sam Houston State Univ/TX	7	-	-	-	-	-	-	-	-	7	-	-	-	-	-	7
Northern Colorado, Univ of	7	-	-	-	-	-	1	-	1	-	2	-	-	-	36	43
Naval Postgrad School/CA	7	1	1	-	4	1	-	-	-	-	-	-	2	-	-	7
Air Force Inst Tech/OH	6	-	-	-	1	-	-	-	-	-	-	-	5	-	-	6
Dayton, University of/OH	6	-	-	-	-	-	1	-	1	-	-	-	5	-	-	6
East Tenn State University	6	-	-	-	-	-	6	-	6	-	-	-	-	2	-	5
Caribbean Ctr Adv Studies/PR	6	-	-	-	-	-	-	-	-	-	6	-	-	-	-	11
Florida Atlantic University	6	-	-	-	-	-	-	-	-	-	2	-	3	-	13	18
Middle Tennessee State University	5	2	-	2	-	-	-	-	-	3	-	-	-	-	11	16
Arkansas U-Med Sciences	5	-	-	-	-	-	5	-	5	-	-	-	-	-	-	5
Baylor University/TX	5	5	1	4	-	-	-	-	-	-	-	-	-	-	19	24
S F Austin State Univ/TX	5	-	-	-	-	-	5	-	5	-	-	-	-	-	-	5
Texas Univ Hlth Sci-San Antonio	5	-	-	-	-	-	5	-	-	-	-	-	-	-	-	5
SUNY Health Sci-Syracuse	4	-	-	-	-	-	4	-	4	-	-	-	4	-	-	4
Tennessee Tech University	4	-	-	-	-	-	-	-	-	-	-	-	-	3	-	4
George Peabody College/TN	4	-	-	-	-	-	-	-	-	-	4	-	-	-	62	66
Mississippi Univ-Medical Center	4	-	-	-	-	-	4	-	4	-	-	-	-	-	4	4
Biola University/CA	4	-	-	-	-	-	-	-	-	4	-	-	-	-	2	6
Hahnemann University/PA	3	-	-	-	-	-	2	-	2	-	1	-	-	-	1	4
Creighton University/NE	3	-	-	-	-	-	3	-	3	-	-	-	-	-	1	4
Meharry Medical College/TN	3	-	-	-	-	-	3	-	3	-	-	-	-	-	-	3
Louisiana Tech University	3	-	-	-	-	-	-	-	-	-	-	1	3	1	7	10
Northeast Louisiana University	3	1	-	1	-	-	2	-	2	-	-	-	-	-	3	6
East Texas State University	3	-	-	-	-	-	-	-	-	-	3	-	-	-	48	51
Pacific, University of/CA	3	1	-	1	-	-	2	-	2	-	-	-	-	-	12	15
Indiana University of PA	2	-	-	-	-	-	-	-	-	2	-	-	-	-	24	26
Philadelphia Coll Pharm & Sci/PA	2	1	-	1	-	-	1	-	1	-	-	-	-	-	6	8
Villanova University/PA	2	2	-	2	-	-	-	-	-	-	-	-	-	-	2	2
Northern Iowa, University of	2	-	-	-	-	-	-	-	-	-	-	-	2	-	9	11
Institute of Paper Sci/GA	2	-	-	-	-	-	-	-	-	-	-	-	2	-	-	2
Florida International University	2	-	-	-	-	-	-	-	-	-	2	-	-	-	12	14
Southern Baptist Theol Sem/KY	2	-	-	-	-	-	-	-	-	-	1	-	-	-	38	40
South Alabama, Univ of	2	-	-	-	-	-	2	-	2	-	1	-	-	-	2	2
Dallas, University of/TX	2	-	-	-	-	-	-	-	-	1	1	-	-	-	1	3
Texas, University of-El Paso	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	2
Mass, University of-Boston	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Drew University/NJ	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
Annenberg Res Inst/PA	1	-	-	-	-	-	-	-	-	-	1	-	-	-	20	21
Lamar University/TX	1	-	-	-	-	-	-	-	-	-	-	-	1	-	4	5

(1) The institutions are ranked according to number of S&E doctorate recipients (column 1). Degrees awarded by institutions jointly are included under the institution that officially conferred the degree.

(2) Subtotal includes doctorate recipients whose engineering fields are not separately shown.

(3) Non-S&E doctorate recipients include those whose field of specialization is unknown.

SOURCE: National Science Foundation/SRS, Survey of Earned Doctorates



Table 7. Science and engineering (S&amp;E) doctorates awarded, by citizenship status, major field, and postgraduation plans of recipients: 1991

Citizenship status and major field	Postgraduation plans									
	Definite plans in the United States									
	Total with defin plans	% with defin plans	Total docts	Total	Pdoc study	Acad empl	Indus empl	Other empl	Unkn type	Defin plans abroad
Number										
TOTAL(1)										
Total, S&E	2,748	63.1	14,988	12,654	5,214	3,099	2,717	1,587	37	2,089
Total, sciences	18,536	65.5	12,133	10,400	4,753	2,637	1,640	1,340	30	1,541
Physical sciences	3,602	66.5	2,395	2,044	1,207	156	563	114	4	297
Physics/astronomy	1,408	64.7	911	730	496	68	109	56	1	159
Chemistry	2,194	67.6	1,484	1,314	711	88	454	58	3	138
Earth, atmos, & ocean sci	837	64.9	543	435	188	69	100	77	1	100
Mathematics	1,040	57.5	598	507	135	293	54	24	1	79
Computer/info sciences	797	62.7	500	420	59	178	157	26	-	75
Agricultural & biological sci	5,714	69.6	3,975	3,388	2,537	385	266	189	11	522
Agricultural sciences	1,072	60.9	653	436	164	109	99	63	1	202
Biological sciences	4,642	71.6	3,322	2,952	2,373	276	167	126	10	320
Social sciences	3,306	60.9	2,012	1,575	1,027	111	270	640	6	410
Psychology	3,240	65.1	2,110	1,575	1,027	111	270	640	6	410
Psychology(2)	5,212	54.8	2,855	2,254	461	462	1,077	247	7	548
Chemical	620	66.8	414	352	63	25	19	19	1	56
Civil	509	49.9	254	176	23	64	68	20	1	72
Electrical/electronics	1,206	53.6	647	533	92	114	278	47	2	100
Materials science	362	57.7	209	150	58	10	66	16	-	56
Mechanical	874	50.7	443	357	86	67	154	49	1	76
Total, non-S&E(3)	13,703	66.4	9,094	8,212	393	4,834	479	2,443	63	762
Total, all fields	37,451	64.3	24,082	20,866	5,607	7,933	3,196	4,030	100	2,851
U.S. CITIZENS										
Total, S&E	13,923	72.2	10,048	9,523	3,651	2,434	1,961	1,457	20	441
Total, sciences	11,946	72.4	8,649	8,191	3,466	2,131	1,335	1,240	19	386
Physical sciences	2,048	75.0	1,536	1,421	745	130	443	100	3	103
Physics/astronomy	737	70.3	518	456	274	57	77	47	1	58
Chemistry	1,311	77.7	1,018	965	471	73	366	53	2	45
Earth, atmos, & ocean sci	584	70.4	411	375	150	66	85	74	-	33
Mathematics	439	67.7	297	288	65	168	37	18	-	8
Computer/info sciences	379	68.3	259	235	25	114	76	20	-	23
Agricultural & biological sci	3,799	74.4	2,828	2,661	1,923	338	215	179	6	140
Agricultural sciences	551	66.2	365	338	107	99	72	60	-	27
Biological sciences	3,248	75.8	2,463	2,323	1,816	239	143	119	6	22
Social sciences	1,901	69.5	1,321	1,249	119	805	100	222	3	118
Psychology	2,796	71.4	1,997	1,962	439	510	379	627	7	60
Psychology(2)	1,977	70.8	1,399	1,332	185	303	626	217	1	55
Chemical	316	77.5	245	236	26	20	171	19	-	7
Civil	139	71.9	100	95	8	43	27	17	-	3
Electrical/electronics	465	64.3	299	290	33	75	143	39	-	7
Materials science	152	70.4	107	89	22	89	12	12	-	17
Mechanical	279	72.4	202	196	24	47	83	42	-	5
Total, non-S&E(3)	10,798	72.1	7,786	7,569	311	4,356	437	2,404	61	127
Total, all fields	24,721	72.1	17,834	17,092	3,962	6,790	2,398	3,861	81	568

See footnotes at end of table.

Table 7. Science and engineering (S&E) doctorates awarded, by citizenship status, major field, and postgraduation plans of recipients: 1991--continued

Citizenship status and major field	Postgraduation plans											
	Total docs	Total with defin plans	%	Definite plans in the United States						Unkn type	Defin plans abroad	Defin plans locon unkn
				Total	Pdoc study	Acad empl	Indus empl	Other empl				
NON-U.S. CITIZENS, PERMANENT VISAS												
Total, S&E .....	1,252	671	53.6	575	219	128	185	38	5	75	21	
Total, sciences .....	871	491	56.4	418	195	104	86	30	3	57	16	
Physical sciences .....	178	107	60.1	94	56	7	29	2	-	10	3	
Physics/astronomy .....	69	44	63.8	37	27	2	7	1	-	6	1	
Chemistry .....	109	63	57.8	57	29	5	22	1	-	4	2	
Earth, atmos, & ocean sci .....	26	12	46.2	12	4	-	6	2	-	-	-	
Mathematics .....	55	30	54.5	27	6	14	4	3	-	3	-	
Computer/info sciences .....	62	35	56.5	33	5	6	21	1	-	2	-	
Agricultural & biological sci .....	263	165	62.7	140	107	12	17	4	-	18	7	
Agricultural sciences .....	56	24	42.9	18	6	3	8	1	-	5	1	
Biological sciences .....	207	141	68.1	122	101	9	9	3	-	13	6	
Social sciences .....	227	106	46.7	83	8	60	3	9	3	18	5	
Psychology .....	60	36	60.0	29	9	5	6	9	-	6	1	
Total, engineering(2) .....	381	180	47.2	157	24	24	99	8	2	18	5	
Chemical .....	44	25	56.8	22	3	-	19	-	-	3	-	
Civil .....	35	16	45.7	13	-	3	9	1	-	2	1	
Electrical/electronics .....	113	58	51.3	49	5	7	33	3	1	6	3	
Materials science .....	25	10	40.0	10	5	-	5	-	-	-	-	
Mechanical .....	59	27	45.8	24	6	5	11	2	-	2	1	
Total, non-S&E(3) .....	562	304	54.1	242	28	170	21	22	1	58	4	
Total, all fields .....	1,814	975	53.7	817	247	298	206	60	6	133	25	
NON-U.S. CITIZENS, TEMPORARY VISAS												
Total, S&E .....	7,252	4,241	58.5	2,551	1,341	536	570	92	12	1,550	140	
Total, sciences .....	4,779	2,971	62.2	1,787	1,090	401	218	70	8	1,080	104	
Physical sciences .....	1,205	747	62.0	527	405	19	90	12	1	181	39	
Physics/astronomy .....	546	348	63.7	237	195	9	25	8	-	94	17	
Chemistry .....	659	399	60.5	290	210	10	65	4	1	87	22	
Earth, atmos, & ocean sci .....	188	119	63.3	48	34	3	9	1	1	66	5	
Mathematics .....	480	270	56.3	191	64	110	13	3	1	68	11	
Computer/info sciences .....	338	206	60.9	152	29	58	60	5	-	50	4	
Agricultural & biological sci .....	1,451	973	67.1	586	506	35	34	6	5	356	31	
Agricultural sciences .....	424	259	61.1	79	50	7	19	2	1	171	9	
Biological sciences .....	1,027	714	69.5	507	456	28	15	4	4	185	22	
Social sciences .....	996	580	58.2	243	34	162	8	39	-	327	10	
Psychology .....	121	76	62.8	40	18	14	4	4	-	32	4	
Total, engineering(2) .....	2,473	1,270	51.4	764	251	135	352	22	4	470	36	
Chemical .....	238	143	60.1	94	34	5	54	-	1	45	4	
Civil .....	303	136	44.9	68	15	18	32	2	1	65	3	
Electrical/electronics .....	554	290	52.3	194	54	32	102	5	1	87	9	
Materials science .....	164	92	56.1	51	31	3	13	4	-	39	2	
Mechanical .....	457	213	46.6	136	55	15	60	5	1	69	8	
Total, non-S&E(3) .....	1,600	986	61.6	396	54	304	21	16	1	564	26	
Total, all fields .....	8,852	5,227	59.0	2,947	1,395	840	591	108	13	2,114	166	

(1) Total includes doctorate recipients of unknown citizenship.

(2) Subtotal includes doctorate recipients whose engineering fields are not separately shown.

(3) Non-S&E doctorate recipients include those whose field of specialization is unknown.

SOURCE: National Science Foundation/SRS, Survey of Earned Doctorates



Table 8. Science and engineering (S&amp;E) doctorates awarded, by citizenship status, major field, and postgraduation plans of recipients: 1991--continued

Citizenship status and major field	Total with defin plans	Definite plans in the United States						Unkn type	Defin plans abroad	Defin plans loen unkn
		Total	Pdoc study	Acad empl	Indus empl	Other empl				
NON-U.S. CITIZENS, PERMANENT VISAS										
Total, S&E	100.0	85.7	32.6	19.1	27.6	5.7	Percentage Distribution			
Total, sciences	100.0	85.1	39.7	21.2	17.5	6.1	0.7	11.2	3.1	
Physical sciences	100.0	87.9	52.3	6.5	27.1	1.9	0.6	11.6	3.3	
Physics/astronomy	100.0	84.1	61.4	4.5	15.9	2.3	-	9.3	2.8	
Chemistry	100.0	90.5	46.0	7.9	34.9	1.6	-	6.3	2.3	
Earth, atmos, & ocean sci	100.0	100.0	33.3	-	50.0	16.7	-	-	3.2	
Mathematics	100.0	90.0	20.0	46.7	13.3	10.0	-	10.0	-	
Computer/info sciences	100.0	94.3	14.3	17.1	60.0	2.9	-	5.7	-	
Agricultural & biological sci	100.0	84.8	64.8	7.3	10.3	2.4	-	10.9	4.2	
Agricultural sciences	100.0	75.0	25.0	12.5	33.3	4.2	-	20.8	4.2	
Biological sciences	100.0	86.5	71.6	6.4	6.4	2.1	-	9.2	4.3	
Social sciences	100.0	78.3	7.5	56.6	2.8	8.5	2.8	17.0	4.7	
Psychology	100.0	80.6	25.0	13.9	16.7	25.0	-	16.7	2.8	
Total, engineering(2)	100.0	87.2	13.3	13.3	55.0	4.4	1.1	10.0	2.8	
Chemical	100.0	88.0	12.0	-	76.0	-	-	12.0	-	
Civil	100.0	81.3	-	18.8	56.3	6.3	-	12.5	6.3	
Electrical/electronics	100.0	84.5	8.6	12.1	56.9	5.2	1.7	10.3	5.2	
Materials science	100.0	100.0	50.0	-	50.0	-	-	-	-	
Mechanical	100.0	88.9	22.2	18.5	40.7	7.4	-	7.4	3.7	
Total, non-S&E(3)	100.0	79.6	9.2	55.9	6.9	7.2	0.3	19.1	1.3	
Total, all fields	100.0	83.8	25.3	30.6	21.1	6.2	0.6	13.6	2.6	
NON-U.S. CITIZENS, TEMPORARY VISAS										
Total, S&E	100.0	60.2	31.6	12.6	13.4	2.2	0.3	36.5	3.3	
Total, sciences	100.0	60.1	36.7	13.5	17.3	2.4	0.3	36.4	3.5	
Physical sciences	100.0	70.5	54.2	2.5	12.0	1.6	0.1	24.2	5.2	
Physics/astronomy	100.0	68.1	56.0	2.6	7.2	2.3	-	27.0	4.9	
Chemistry	100.0	72.7	52.6	2.5	16.3	1.0	0.3	21.8	5.5	
Earth, atmos, & ocean sci	100.0	40.3	28.6	2.5	7.6	0.8	0.8	55.5	4.2	
Mathematics	100.0	70.7	23.7	40.7	4.8	1.1	0.4	25.2	4.1	
Computer/info sciences	100.0	73.8	14.1	28.2	29.1	2.4	1.9	24.3	1.9	
Agricultural & biological sci	100.0	60.2	52.0	3.6	3.5	0.6	0.5	36.6	3.2	
Agricultural sciences	100.0	30.5	19.3	2.7	7.3	0.8	0.4	66.0	3.5	
Biological sciences	100.0	71.0	63.9	3.9	2.1	0.6	0.6	25.9	3.1	
Social sciences	100.0	41.9	5.9	27.9	1.4	6.7	-	56.4	1.7	
Psychology	100.0	52.6	23.7	18.4	5.3	5.3	-	42.1	5.3	
Total, engineering(2)	100.0	60.2	19.8	10.6	27.7	1.7	0.3	37.0	2.8	
Chemical	100.0	65.7	23.8	3.5	37.8	-	0.7	31.5	2.8	
Civil	100.0	50.0	11.0	13.2	23.5	1.5	0.7	47.8	2.2	
Electrical/electronics	100.0	66.9	18.6	11.0	35.2	1.7	0.3	30.0	3.1	
Materials science	100.0	55.4	33.7	3.3	14.1	4.3	-	42.4	2.2	
Mechanical	100.0	63.8	25.8	7.0	28.2	2.3	0.5	32.4	3.8	
Total, non-S&E(3)	100.0	40.2	5.5	30.8	2.1	1.6	0.1	57.2	2.6	
Total, all fields	100.0	56.4	26.7	16.1	11.3	2.1	0.2	40.4	3.2	

(1) Total includes doctorate recipients of unknown citizenship.

(2) Subtotal includes doctorate recipients whose engineering fields are not separately shown.

(3) Non-S&amp;E doctorate recipients include those whose field of specialization is unknown.

SOURCE: National Science Foundation/SRS, Survey of Earned Doctorates



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Topic: stisdirm

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## For More Information

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**stis-req@NSF** (BITNET)  
Phone: 202-357-7555 (voice mail)  
FAX: 202-357-7663  
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